DOMESTIC ENGINEERING

Whole No. 975 Vol. LVI. No. 8. 443 South Dearborn St., Chicago. August 19, 1911

The Wright Credit System

"Booster" Says This System Has Practically Solved the Credit-Trouble Problem in His Territory. What Do You Think About It? "Domestic Engineering" Constitutes Itself an Open Court of Inquiry and Reply on the Subject. We Would Like to Hear From You

Much has been written in the trade papers criticising and lamenting the deplorable condition of the plumbing industry. There has been much good advice given as to what we **should** do, but so far I have failed to hear of what is actually being done in a practical way to better conditions in the various cities or states.

Many have heard of and participated in schemes tried out by various local associations. Some of these schemes have doubtless proven beneficial, while others (by far the greater number) have been failures. How are we to know of these various attempts, successful or otherwise, unless it is made known through the channels of our trade-papers? Surely the vast majority of the trade are not making such fabulous profits that they are ashamed to let the public know of it.

The majority of schemes tried out in the past have been more or less of an illegal character, and as such were consequently doomed from the very hour of their conception. I propose now to lay before you a scheme or system now in vogue in a city with a population of some 350,000, and known as the Wright Credit System, so named after its originator. It is not claimed that this scheme is perfect, or even the best, but it is laid before the readers of "Domestic Engineering" for two reasons: First, to invite criticism; we want to be shown how to strengthen it as a whole. Secondly, it is written to start the ball rolling that we may hear of other and perhaps better schemes, and possibly help in a feeble way some who are now looking for light along these lines.

Up until 18 months ago, this city, though fairly well organized, was doing little or nothing to better conditions, and things were going from bad to worse. The conditions we were confronted with and had to fight were the same as in almost all large cities; members were taking work at ruinous prices, were figuring work on an 8 and 10 per cent basis, making no allowance for overhead expenses. Some were taking work on a percentage plan, thus lending their name to the owner to buy plumbing material at wholesale prices. We found that many of our members were thus rapidly going behind and falling into the clutches of jobbers, who were simply using them as a catspaw to turn over large quantities of stock. Some of the large jobs were actually figured and financed by the jobber, who used such a member as a thinly disguised cloak, thus to enable them to go out and compete with their own customers. Some of the jobbers extended unlimited credit to men whom they knew were slashing prices, thus enabling men who had no capital to do business on their (the jobbers') money. Yet in order to carry on their own business these same jobbers looked to and expected the legitimate trade to discount their bills, in order that more credit might be extended by them to these price-cutters. Think of it, you who are in the same boat now, and have the courage and manhood to demand fair treatment.

The fact that the jobbers claim to have lost heavily through these loose credits, does not remunerate the trade who were forced to remain idle, though it is to be hoped that their experience will be of value to themselves. We also found that in regard to selling exclusively to the legitimate master plumber, some of the wholesalers were very weak-kneed, and instead of looking for an excuse **not to sell,** they apparently looked for every excuse **to sell** to the outsider, and as a partial remedy for some of these abuses, we have evolved the following system, which we hope will in some measure aid in bettering conditions.

Whereas, Complaints have come to this association that members of our association are not paying their bills promptly, and asking for some basis of protection whereby

they may know who to sell on credit and who to sell for cash; and

Whereas, We believe that in order to make a fair and reasonable profit to entitle a jobber to sell on credit to any plumber eligible to membership in this association, such plumber should make a gross profit of twenty per cent on jobs under one thousand dollars; and

Whereas, Out of such gross profit is to be paid the rent and interest on investment, and time and labor of the owner of the respective plumber's business, we believe that the jobbers should be notified that credit should be given only to such plumbers, whether members of this association or not, who shall take the care to figure their jobs on a twenty per cent gross profit, and to that end

Be it Resolved:

1. That to make a gross profit of twenty per cent it is necessary that for the roughing in of each plumbing fixture there ought to be charged, as the cost of labor, the sum of five dollars, and for each plumbing fixture installed after the roughing in, the further sum of one dollar, and that boilers, heaters, sand traps, or any fixtures or outlet not requiring a vent or trap should not be classed as a plumbing fixture.

2. That hot water heaters be figured together with all necessary material and labor, vents and such other necessary accessories as follows:

Garland or Rex double coil, Reliable, Domestic, Humphrey No. 5 R., Lion, Ideal triple coil, Lawson No. 10 and No. 20, Hoffman No. 12 and No. 18	$18.00 set up.
Lawson No. 1½, Taco, Hoffman No. 1½	15.00 set up.
Comb. Boiler Heaters, 24 gals.	30.00 set up.
Comb. Boiler Heaters, 30 gals.	33.00 set up.
Comb. Boiler Heaters, 40 gals.	36.00 set up.

3. That all sewerage on unpaved streets should be figured at thirty cents per foot, and on paved streets at one dollar and twenty-five cents per foot. Water taps and meters to be figured at cost as per city charges.

4. That cess pools should be figured at one dollar and twenty-five cents per foot in depth.

5. That gas fitting be figured at 10 cents per foot, put in.

6. That all other material than that mentioned above ought to be figured on the **local small quantity prices** as quoted by local jobbers.

7. That all bids ought to be figured on a uniform figuring blank which may hereafter be adopted by this association.

8. That to the sum total of the above listed matters and things be added the further sum of twenty per cent thereof as the gross profits.

9. That in order to insure to the jobbers that this association will aid them in protecting credit which may be given to the members of this association:

It is further Resolved:

10. That each member of this association immediately upon his submitting a bid for a job shall file with the secretary a carbon copy of the above mentioned figuring blank showing the list of material, labor, etc., required to do the job, together with the amount of the bid as submitted, and such copy when given to the secretary must be enclosed in a securely sealed envelope, with the name of the member submitting the copy written on the outside of the envelope, together with the correct name and location of the job as will appear upon the permit which may be issued for the installing of the work on which the bid has been given.

This envelope shall not be opened by the secretary nor any other person until after the secretary has been duly notified by the member securing the job that the contract for same has been let, or until after the secretary has secured other reliable information that the contract for the job has been let, and then opened only by the secretary. A member, on being awarded a contract for a job under one thousand dollars, shall at once notify the secretary of the fact, and if called upon to do so, shall render the secretary all assistance asked for to enable the secretary to secure a full opportunity to estimate the job. The envelope and the copy contained therein the secretary shall secrete from any and all persons whatever, and more especially from the other members of this association. If the secretary wishes to do so, he may, after becoming certain that the job has been let, figure the job so as to see that the twenty per cent gross profit on jobs under one thousand dollars is maintained, in order to make a true and correct report of the respective plumbers to the jobbers for their information.

11. That the members of this association immediately upon coming into possession of information that another plumber, whether a member of this association or not, has taken a job below said twenty per cent gross profit, shall report the same to the president of this association, who shall immediately cause the secretary to make an investigation for the purpose of reporting same to the jobbers.

12. That it is the desire of this association to have only members thereof, persons, firms or corporations, who promptly pay their bills to the jobbers, and the jobbers are hereby notified that it is not safe to sell on credit to any plumber making a less gross profit than twenty per cent, and that cash should be required of all plumbers bidding on a job less than twenty per cent gross profit.

13. That the provisions of these resolutions go into effect on and after March 1, 1911.

The system is thus self-explanatary. We know some of these prices are low, but they are intended as a minimum, and as a starter.

A description of some of the details of our association may also be of some interest. Our initiation fee at present is $50. The funds to carry on the business of the association are derived from two sources; the monthly dues of all members, which are 75 cents per month, and a fixture due for each and every fixture installed, or outlet roughed in for fixture, by all members. In this way the dues are equalized, the member installing the greater number of fixtures, and receiving the greater benefit, paying more than the member who is content to hobble along, installing only an occasional new fixture.

As this sum is just sufficient to pay all running expenses of our association, and is not placed in any fund for division amongst the members, it has been declared perfectly legal. As an inducement to encourage regular attendance at our meeting and thus keep all members conversant with association-matters, we pay each member who answers double roll-call one dollar per meeting. We meet once a week, and to prevent any member answering to his name and then leaving the meeting, we require that they also answer to their names at the close of the meeting, when a silver dollar is handed each. The result of this method is truly surprising, and the average attendance at our meetings is probably the

largest of any association of its size in the country. We also conduct in connection with the office of our association, a most efficient collection-department, which is absolutely free to all members, for the collection of delinquent accounts. During the past 90 days the assistant-secretary, who has charge of this work, has collected over $1,600 for members, in bad accounts, and all at an expenditure of $240, which was the amount of his salary for that period. This department also issues regularly to members a printed list of those who have failed for any reason to pay their plumbing bills.

As was expected when the credit system went into force, we had much to contend with, and every excuse imaginable was advanced by members, for having failed to live up to the 20 per cent feature. We found, surprising as it may seem, that a great number of our members actually did not know or professed not to know, the small-quantity cost-price, so our first move was to overcome this by issuing to each member a loose-leaf small-quantity cost-book, which is kept posted to date by the insertion of new leaves from time to time, when prices change. We have also issued to members a retail price-list of all material, to apply to jobbing and day-work.

I may add that since putting our scheme into effect, the jobbers, profiting by past experience, have formed themselves into a credit-chapter, and as such have had every plumber in the city rated for a specified amount of credit, and when that limit is reached, no jobber will extend further credit. For instance, if John Jones' credit is placed at $500 by the chapter, then if John Jones buys $200 worth of Smith & Co., $200 from Brown & Co., and seeks to buy $200 from Robinson & Co., he would be promptly informed that he could have $100 worth only. In other words the jobbers have at last combined to prevent the little fellow doing a big business on their capital. This is as it should be, and it is to be hoped will be beneficial to all.

Trusting that the foregoing details of our efforts to better trade-conditions may bring forth remarks and suggestions that may enable us to strengthen our plan as a whole, or to hear from some of your readers of a better plan that is in successful operation elsewhere. I remain, yours sincerely,

Booster.

HONOR CONFERRED ON WM. PAUL GERHARD.

The Technical University of Darmstadt, Germany, has conferred upon Mr. Wm. Paul Gerhard, author and consulting engineer for hydraulic and sanitary works, the honorary degree of doctor of engineering. The rules under which this title is given state that it is only awarded as a rare distinction for conspicuous merits in promoting the technical sciences, upon the unanimous vote of the faculty and the senate of the university, all other universities having been previously notified.

AN ECHO FROM THE CONVENTION.

Being an Explanation, by J. J. Cosgrove.

Those who have had anything to do with the United States Patent Office, know that it is a graveyard of Hopes. There it is found that ideas, thought new, have been covered with Letters Patent by others, years before, but never exploited, so that nobody knew of their existence, until good money had been paid for the knowledge.

This explanation has nothing to do with patents or patent office methods, which are cited only to show that many minds often work along the same lines, without knowledge one of the other.

Such a state of affairs is developed by my paper, "A Page for a Chapter on Plumbing and Heating," presented at the 29th annual convention of the National Association of Master Plumbers, held at Galveston, Texas, June 13-15, 1911, and published in the August 5th number of "Domestic Engineering."

In that paper I took the stand that no city in compiling a plumbing code had ever considered the shrinkage of timbers and settlements of buildings as affecting the plumbing work. At the time that paper was written, so far as I could learn, that statement was true. As a matter of fact, however, the commission which had framed the plumbing code for the state of Ohio had gone very thoroughly into the matter, and the result was they incorporated the following provision in connection with earthenware water closets:

"In wooden joist construction the connection between the earthenware and soil pipe shall have a suitable length of lead pipe between the wiped joint and the under side of the floor. The word 'suitable' in this code is construed to mean 'sufficient to allow for necessary buckling according to construction.'"

Not wishing to detract one bit from the credit of the commission which drafted that distinct improvement in advanced plumbing, I take this opportunity to acknowledge, publicly, their services to sanitation, and commend their far-sighted wisdom which discerned the necessity for flexibility in plumbing, and their courage in providing for it, long before the subject had become a matter of general discussion in the trade.

According to that provision of the code, hereafter every earthenware closet must be so connected to the drainage system that the shrinkage of the joists, which amounts to from ½ to 3/4 in. will be automatically taken care of so that the closet bases will always remain on the floor, not be held above the floor line a distance equal to the shrinkage, thus affording an unsanitary crevice for the incubation of vermin and the collection of filth.

This provision of the Ohio State Code ought to be adopted in some form or other by every city which hereafter compiles or adopts a code, and should form an amendment of every existing code.

Alternation.

Farmer Silow—Do you alternate your crops?

Farmer Timothy—Yep, have 'em killed by one thing one year and another the next.—Puck.

Too Heavy.

"I say, you fellows," said Smith at the club, "you are supposed to be good at guessing. Tell me where the lightest men are to be found?"

"The lightest men," ruminated Jones; "I should say the lightest men would be in Ireland; you know, men of Cork."

"Well, I would say Scotland," remarked Brown; "men of Ayr."

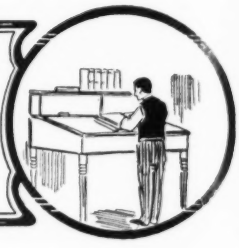
Several guesses were made, but none right.

"I'll tell you," said Smith. "Although in Ireland there are men of Cork and in Scotland men of Ayr, in London—on the Thames—there are lightermen."

Smith still wonders why the club fellows did not laugh. —Ideas.

BUSINESS MANAGEMENT

NEW METHODS FOR OLD



"THE SQUIRE" ON PLUMBERS' TRADE-MARKS

Editor "Domestic Engineering":—Ye worthy editor has expanded right manfully in ye recent issue of "Domestic Engineering" on ye subject "Trade-Mark," and it was indeed a most worthy subject and most properly handled, particularly from the standpoint of the manufacturer.

But if the jobber and the manufacturer need trade-marks, so also does the master plumber who is building a business to stay, who is building his structure on the rock of good work, a living profit, stability, and public good will, rather than on the sands of cheap work at competitive prices, no garantee, and no public good will. A Minneapolis master plumber recently placed on the local market a laundry tray stand of merit. It is strong and heavy, self-supporting, and in addition has cast-iron uprights to hold the laundry in place and also to hold the water-pipes securely in position. It is without doubt the very best laundry stand that the writer has ever seen or heard of and is sold at a price that is right. In connection with its sale, one of the salesmen for a local jobber was trying to sell one of them to one of his customers, a master plumber, but could not seem to make his selling-points stick sufficiently deep, and so he inquired of the master plumber as to his method of setting up a tray and in reply he was advised that the common cheap legs were used together with a piece of a 2x4 driven through the floor of the basement and into the ground below, and the laundry drilled and bolted to this piece of lumber. The salesman made the remark that this wood would rot away within a very few years and undoubtedly drop the tray to the floor, to which the master plumber answered "that it would make no difference to him as he would have his money for the job a long time before the wood could rot and that was good enough for him." If that is a criterion to go by, you may rest assured that the rest of his work is installed in the same dam-if-I-care manner and is a credit to the craft in general Not.

If you are going to be a master plumber and are figuring on sticking to the business for your wherewithal, you must make up your mind to do a good job or none at all, and to do this you must get your PRICE. Talk good work, install good work, ask a good price for it and you will build up a business that will endure years without end.

Do not be ashamed to put your name on your work. Have it embossed on your closet-bowls; have it on the overflow strainer on the bath-tubs you install; have it on the cock-hole covers you use; have it on toilet-paper holders and provide one at the side of every closet you install; and if your work is a credit to your name, you will never regret it.

The plumber's name should be a garantee that he is standing back of every job he does and of every fixture he installs, and it therefore makes it obligatory upon the master plumber to purchase only such materials as he can safely garantee; to beware of the cheap-John jobbers and peddlers with their bargain-counter antics.

Nowhere is the cheap element so predominant as it is in the sale of closet combinations and brass goods, the two articles which should by all means be the best obtainable. Closet-tanks are turned out with toilet-paper weight linings, near ball cocks and flush valves, and a finish with about as much durability as the finish on one of the girls' faces of the Jolly Troubadours Company in a Chicago rain-storm. The bowls are lop-sided, undersized, and with extremely small waste openings, and the less said of the seats the better. Taken all in all, it must take the courage of a Scotch Guard in kilts to install one of these contraptions and pretend that it is a closet combination.

The brass work looks for all the world like a yellow dog on a rainy day, both in color and from the fact that the hide shows through in spots, and has in general a hang-dog appearance that speaks louder than words of mouth. They will rattle and hammer and splutter and splash and go broke within a few weeks' time, making repairing necessary for temporary use, and replacing necessary for permanent use.

Let's wake up, make quality our watch-word, become full-fledged business men with modern business-like methods, and we'll make a little money.

As it now is, every time you meet a master plumber you meet a knocker; the other fellow is bidding too low, the trade has gone to the bow-wows, the poor farm is awaiting us, etc., etc. You know it all by heart, so why repeat it. Is that the fair way to look at the condition of the plumbing business? I should say not. We should assert ourselves; we should be boosters; we should look for the bright side and forget the gloom and bitterness. The plumbing business is just exactly what it is because of the men who are in it. I am reminded of those lines:

"Twixt optimist and pessimist, the difference is droll.
The optimist sees the doughnut, the pessimist the hole."
What are you?

Certainly, there must be some good to the plumbing business or we would not all stay in it, and for that reason I decry this eternal howling and knocking. Let's boost; let's talk prosperity; let's look prosperous, and we will make for more good, we will elevate ourselves and our business, we will accomplish that impossible feat of lifting ourselves up by our own boot-straps.

Will you do your share for the betterment of our absolutely necessary business?

Minneapolis, Minn. "The Squire."

THEY LIKE OUR EDITORIALS.

Editor "Domestic Engineering":—We wish to thank you for your editorial in the July 29th issue, and for all the preceding ones. "Domestic Engineering" is a great paper for the trade.

Daytona, Fla. Staples & Cutten.

When Man Makes Up.

He—"Yes; it's very true, a man doesn't learn what happiness is until he's married."

She—"I'm glad you've discovered that at last."

He—"Yes; and when he's married it's too late."—Le Rire.

EXPERIENCE.*

By E. F. Arras, Columbus, O.

The plumbing industry as a general proposition is like the average business. With this idea in view, the one who would succeed must keep his health and mind keyed to perfection. Experience teaches that this is impossible where there is dissipation, and the one who fails to follow this experience may not close his doors, but he certainly will not be truly successful.

Bovie says: "Formerly, when great fortunes were only made in war, war was business; but now when great fortunes are made in business, business is war!"

Second—Follow one line of business! It will be a profitable day when the plumber does nothing but plumbing and gas-fitting; the heater nothing but heating and ventilating; the sewer man nothing but sewerage and drainage, and the chandelier man nothing but lighting.

The members who will most aprepciate this are those who daily see a large amount of money hanging wasted in a stock of chandeliers daily growing out of date and being shop-worn. How much is made out of a heating job, unless you have a large special department in this line that amounts to a separate business? Does it pay to compete with the day-laborer who is figuring sewer-work?

Experience teaches us that with a few exceptions the man who gives his undivided attention to one line of employment will become expert and most successful.

This undivided attention does not mean to decide to do only one thing and then act as director in this or that company, officer another company and finance another, or absent yourself from your business for this or that club, or be interested in fast horses or fast women, or by making trade good for some saloon. It means absolutely constant attention.

Edwards says: "Avoid multiplicity of business; the man of one thing is the man of success."

Henry Ward Beecher says: "Stick to your legitimate business; do not go into outside operations! Few men have brains enough for more than one thing. To dabble in stocks, put a few thousand dollars into a mine, a few more into a factory, and still more into an invention, is enough to ruin any man."

Third—Keep everlastingly at it! "Perpetual pushing and assurance put a difficulty out of countenance and make a seeming impossibility give way," says J. Collier.

The days that you will be able to make your best efforts are few and short. Do not feel that if you are paying expenses you should be satisfied, for the day is sure to come when you will be unable to pay expenses, and then instead of resting on the fruit of your toil you will see the hideous waste of a life, which in comparison will make the loss of any amount of money seem small.

Shuttleworth says: "Life's evening will take its character from the day that preceded it."

Fourth—Know your business in all its details! It is just as important to be able to keep the books, do the buying, conduct the selling, attend to the correspondence, draw the contracts, manage the finances and hire the help, as it is to be expert in estimating or doing the manual labor of the most intricate job.

Feltham gives the thought in a few words: "In business three things are necessary—knowledge, temper and time."

It is often more important than doing the manual work to know from your books that your business is paying; to get all the money due you, and hold your trade with proper office-work; to secure proper recognition by good correspondence; to protect your interests by a good contract; to perform all the difficult business gymnastics covered by the magic words, "Manage the finances!"

Fifth—Buy your material right! Never buy to please the salesman or the jobber. They will both think more of your trade, to know that your first and only consideration is your personal interest. Never buy because you think that you may need the material. Base your orders on positive calculations. Our wealthiest and best business men and financiers never take a chance; they see the finish, or they will not begin.

Never buy in large quantities unless you use the material

E. F. Arras, Columbus, O.

that way; and even then stop and figure. Consider the small additional discount for heavy orders; be sure the discount is greater than the value of the money for use in your business; figure the cost of insurance and storage. Do not buy in large quantities because some seemingly successful competitor has done so; he can make a mistake as well as any one else, and probably stand it better than you.

The jobbing competition is so great at present that the plumber who is a good buyer can do as well on a very small order as a poor buyer can on carload lots.

With the postal, telegraph and freight accommodations of today, it pays to order in smaller quantities. Buy only the material for which there is a demand. Do not jeopardize your interests by carrying in stock a thing for which you must create a demand. Think of the thousands of dollars laying in the shops of Ohio tied up in out-of-date material; each thing may cost little in itself, but as a total it will amaze you. In this connection permit me to state that through the experience of the finest show-room in Columbus, it does not pay to show high-priced and seldom-used fixtures; the trade that uses this class of materials prefers to buy from catalog or architects' specifications,

*Reprinted by request from "Domestic Engineering," March 10, 1906.

and thinks that in this manner it is securing the very latest (which is quite near the fact).

Sixth—Do not pay high rents! No matter how the business, the rent comes regularly and seemingly quick. Repair orders usually come over the 'phone and new work by solicitation, and comparatively few customers call personally at the place of business, so that a few steps out of the high-rent district will not injure your trade.

One of the saddest dreams is: "If we were only in a better location, how it would improve our business!"

There is a homely old saying: "You cannot make a silk purse out of a sow's ear," and it conveys the thought in this instance. There is only one way to get the business and that is to go after it; and a plumbing-shop in a fine, high-priced location is as much out of place as a peanut-stand in a modern banking-room.

Seventh—The waste in advertising! Through an experience in every class of advertising, from a church or a race-program to novelty, street-car and full-page newspaper advertising, I can say positively that it does not pay. I realize that a new name must be placed before the public, but, other than that, it does not pay, in the plumbing business. A vast number of business men are certain that it pays to advertise, and it does, in their line, but not in ours. A fur coat is a good thing, and by some considered indispensable, but it is of little use to the Filipino; and so it is in advertising with a plumber. It is the most costly method of realizing the smallest results. If you would be well advertised, do your work well; do it promptly; when you make promises, keep them; when your work is questioned, make it right at once, regardless of expense, and charge it all to an advertising account. You will find the biggest returns in that kind of advertising, and the amount invested small.

Eighth—In the race for business, do not feel that you must do it all, or the most of it. If others think that it pays to try to do all of the work, both in their own cities and out, do not rush after them, for it may not be paying them as much as it appears, and the condition in their business may be different from yours. If you cannot get the job honestly, do not take it! If you cannot get it with a profit, do not take it! If the money is in doubt, do not take it! And, above all, be positive that your figures are all right!

A contract not properly secured will always be a source of annoyance, and, in addition to all the other troubles, will probably lose your patronage. It will pay to have the contracts in writing for new work and large repair jobs.

Do the work well, furnish the best material for the money, and follow the specifications. Failure to do this will prove a loss, for the occasions are few where the necessity for additional work will not cost more than the attempted deviation.

Ninth—Use every possible means to prevent your employees controlling your business. I do not wish to discuss union matters in this essay, but the employer who does not, in some manner, protect his interests so that he can make any desired change at any time, is playing with a very dangerous condition, and at the most unfortunate time may suffer the certain loss of misplaced confidence.

Although we have some notable exceptions to the open-shop, the lessons taught by improvement emphasize in no uncertain manner the costly experiences of others.

Tenth—Keep your accounts collected! "Promptness in business is the soul of business." No time is as successful or easy to collect as the present. A few days' delay may show a defect which you should replace, but for that very reason you should have the use of the money. Collect as closely as possible, for in no other business is the discount for cash so small or the terms so limited in buying from the jobbers. Then why loan to your customers?

Be slow to enter into a lawsuit, but if that course is inevitable, do it at once and your chances will be the better for it.

Eleventh—Be a loyal association man! Obey the rules and regulations, not to avoid the punishments but to better your interests. If you have rules of which you do not approve, enforce them and they will be repealed. Do not expect to see dollars coming to you at each meeting. Stop to think of the many advantages to which you have grown accustomed, and now regard as a matter of course, but which, if taken from you, would show the deplorable condition existing previous to the association. Few members know the extent of the vast association of which they are a part, and, like citizens of this vast country, will never realize the enormous benefits unless it were possible to take them away temporarily. I wish that each member might attend all conventions, and could realize that his small dues and limited time secure larger returns than the same amount expended in any other manner.

Twelfth and Last—I ask your indulgence in a slang expression in order to convey my thought: "Gum shoe it!" Do not boast to your competitors of the work you are doing; it will make them envious and stronger in their efforts to defeat you.

Say that business is fair, and you will be as well thought of and will not injure any one. It is the American habit to boast of good trade; but to the average customer it seems that you may not appreciate his business, or may be too busy to attend to it.

Stop to think; now, any time, and all the time. Is your business operated properly? Are your personal habits good? Are your expenses as low as possible and are your personal expenditures within reason? Without economy none can be rich, and with it few can be poor.

Let us devote every energy to the cause, following the thought of Burke. "The nerve that never relaxes, the eye that never blanches, the thought that never wanders, these are the masters of Victory!"

GOVERNMENT CONTRACTS TO BE AWARDED.

Supervising Architect James Knox Taylor, Treasury Department, Washington, D. C., will receive sealed proposals as follows:

Until 3 p. m., August 31, 1911, for the completion of the fourth story, including plumbing, gas-piping, heating apparatus, electric conduits and wiring, and lighting fixtures, of the U. S. post-office and court-house at Grand Rapids, Mich.

Until 3 p. m., Sept. 7, 1911, for the construction, complete, including plumbing, gas-piping, heating apparatus, electric conduit and wiring, and lighting fixtures, of the U. S. post-office at Ensley, Ala.

Until 3 p. m., Sept. 8, 1911, for the construction, including plumbing, gas-piping, heating apparatus, electric conduits and wiring, and interior lighting fixtures, of the U. S. post-office at Pontiac, Ill.

Until 3 p. m., Sept. 12, 1911, for the construction, complete, including plumbing, gas-piping, heating apparatus, electric conduits and wiring, and lighting fixtures, of the U. S. post-office at Athol, Mass.

Until 3 p. m., Sept. 15, 1911, for the mechanical equipment, excepting the elevators and mail-handling apparatus, including the plumbing, gas-fitting, boiler plant, heating and ventilating systems, conduit and wiring system, vacuum cleaning system and induced draft, for the U. S. post-office at Washington, D. C.

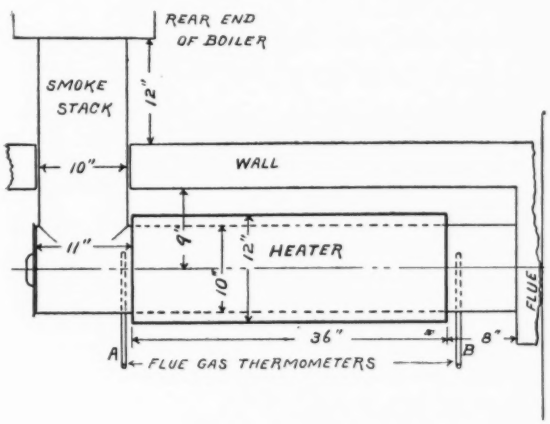
All proposals should be in accordance with drawings and specifications, copies of which may be obtained from the custodians of the above sites, or from the office of the Supervising Architect at Washington, D. C.

A Successful Water-Heater

By Frank L. Busey, M. E., Urbana, Ill.

I had an opportunity one day last winter to study the operation of a rather clever water-heater, surrounding the smoke pipe between a house-heating boiler and the chimney. This heater was mounted in the cellar of a residence, and as it was in use, as complete a test could not be made as I would have liked. The accompanying sketch shows the location of the heater, the cold water entering the lower side near one end, and leaving from the upper side near the other end. According to the measurements the heater must have held about seven gallons of water. Flue-gas thermometers were inserted in the stack at A and B and the temperature of the water was read from a thermometer inserted in the top of the tank.

The apparatus consisted simply of a galvanized iron drum made especially for the job of No. 14 iron. The smoke-stack enters one end, and the other end is connected by a short length of pipe to the flue. The heater is connected to two 30-gal. tanks on the floors above, and



A WATER HEATER.

maintains a temperature of from 140 to 150 deg., furnishing sufficient hot water for two families.

Before starting the test the tanks were emptied, and refilled with city water. When the test was started at 9:15 a. m. the water in the heater was at a temperature of 60 deg. and 10 minutes later at 132 deg. At this time the circulation evidently started up more vigorously, as the temperature fell to 116 deg. and then made a gradual gain till it reached the ordinary temperature maintained. The entire operation required about one hour and forty-five minutes, but the occupants of the house probably used some hot water during this time. A study of the accompanying table will show very clearly the time required for this temperature-rise.

One noticeable feature brought out by this test is the small drop in temperature of the flue-gases that is required to maintain the temperature of the water at 140 deg. or more. This drop was only about 20 to 25 deg., and the flue-gases were still so hot that they might have been lowered 100 deg. without impairing the draft enough to hurt the fire. The average temperature of the gases entering the heater was 570 deg., a temperature beyond the conomical point, with the boiler not being forced.

The inside surface of the heater was about 7 sq. ft. in area, and was equivalent to adding 7 sq. ft. of indirect heating surface to the boiler. Just how large or how long a heater could have been used without affecting the draft would be difficult to say. It will be seen from the sketch that the size as used was evidently determined by the space available, the entire piece of apparatus fitting into the corner of the room in a very compact manner, at the same time being easily accessible for cleaning or repairs. Just how long the heater will last under these conditions is a question which will be more easily answered in a year or two.

This entire outfit of two tanks and the heater held probably 70 gal. of water. According to the rue of allowing

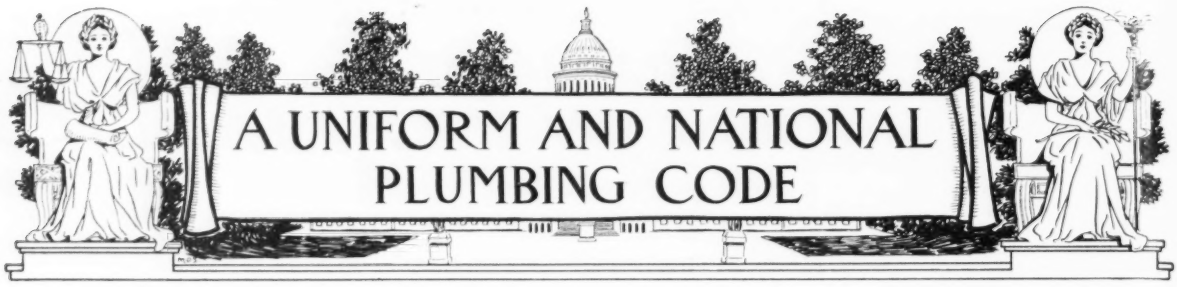
TEST ON A WATER HEATER.

TIME	FLUE GAS TEMPERATURE			TEMPERATURE	
	BEFORE ENTERING HEATER A	AFTER LEAVING HEATER B	TEMP. DROP FROM A TO B	WATER IN HEATER	IN BOILER
9:15	680	580	100	60	170
20	675	575	100	70	
25	630	570	60	132	
30	612	570	42	118	
35	582	552	30	118	170
40	576	548	28	116	
45	568	538	30	118	
50	548	522	26	120	
55	528	506	22	120	170
10:00	518	498	20	120	
05	502	484	18	120	
10	546	523	23	121	
15	560	538	22	124	176
20	548	525	23	128	
25*	510	480	30	129	
30	490	470	20	129	173
35	512	494	18	130	
40	542	520	22	132	
45	560	538	22	136	176
50	574	548	26	139	
55	590	562	28	141	180
58†	666	620	46	145	184
11:00	682	636	46	147	188
05	555	530	25	147	

* FIRED † POKED

two square feet of steam coil per gallon of range-tank, this job would have required 140 sq. ft. of steam coil to have accomplished the same result. Not a bad bit of saving from the waste gases. Would it pay to add one or two more of these heaters to the smoke-stack and connect them to radiators on the floors above? Let some one try it and find out. It is probable that if the heater had been mounted directly at the rear of the boiler, where the gases were still hotter, that the temperature of the water would have been still higher, but for the purposes intended the water was hot enough.

The job as installed made a very satisfactory piece of apparatus, and had been in successful operation for some time previous to the test.



By Henry D. McCormack, C. E.

XIV.

Offsets.

The offsetting of pipes is a matter which will come up for consideration time and again if provision is not made for it in our plumbing code. The New York City code, defective and obsolete as it is, still seems to cover this phase of plumbing fairly well. In section 54 it says:

"The arrangement of all pipes must be as straight and direct as possible. Offsets will be permitted only where unavoidable."

Again, in section 84, it says: "Necessary offsets above the highest fixture branch must not be made at an angle of less than 45 deg. to the horizontal."

This gives a certain amount of lee-way to the designer, which is necessary if the best of building is to be obtained, and in this respect it is well to remember that the plumbing is only one of the branches of building. If several hundred feet of drain can be run in a horizontal position in the basement or under the cellar floor, there is no reason why 8, 10 or 12 ft. of pipe cannot occasionally be run between beams or under the ceiling without leading to any bad effect. If the rule of no offsets were rigidly adhered to, there would be occasions when a soil pipe would have to be brought up through the dining-room of a hotel, for instance, and several feet away from a wall or partition, whereas by offsetting it near the ceiling, the stack could be carried down in or alongside of the partition without affecting the plumbing installation, and without disfiguring the building. When vent stacks have to be offset in this manner, however, the vent stack above the offset should be connected with a Y branch to the accompanying soil or waste stack, so that anything introduced into the vent stack would fall by gravity into the soil or waste stack and be washed away, not fall to the horizontal portion of the vent offset as it otherwise would and by accumulating probably stop the pipe. The vent offset can then connect to this vent stack above where it is joined to the accompanying soil or waste stack. As this seems like a more or less complicated arrangement for the plumbers to understand, it might be well in a model code to show an illustration of the method so any one can understand it.

Above the point where the highest fixture discharges into the line, offsets of less than 45 deg. are not advisable. There is no water flowing into the stacks above this point, and the pipe from here to the roof ought to be so constructed that anything falling in would follow down to the topmost fixture outlet by its own weight; and this would be impossible if quarter bends and long horizontal offsets were used.

Size of Soil Stacks.

We now come to one of the most important parts of a plumbing installation, and the one particular part about which little seems to be known. I mean the proper size of soil and waste stacks. The New York City code on this subject says:

"The diameters of soil and waste pipes must not be less than those given in the following table:

Main soil pipes	4 in.
Main soil pipes for water-closets on five or more floors	5 in.
Branch soil pipes	4 in.
Main waste pipes	2 in.
Main waste pipes for kitchen sinks on five or more floors	3 in.
Branch waste pipes for laundry tubs	1½ in.
When set in ranges of 3 or more	2 in.
Branch waste for kitchen sinks	2 in.
Branch waste for urinals	2 in.
Branch waste for other fixtures	1½ in.

It will be seen there is nothing scientific or accurate about this table of requirements. For instance, "Main soil pipes for water-closets, on five or more floors" are to be 5 in. in diameter, without regard to the number of fixtures connected thereto or the amount of water discharged therein. As a result of this loose method of specifying sizes, there are flat buildings in New York City in which 5-in. soil pipes are extended from basement to roof to take the discharge from 10 fixtures, while in other buildings perhaps not a block away as many as 60 fixtures are connected to a 5-in. stack. There is something radically loose and unsatisfactory about a code which does not define better than that, and no other code perhaps shows such a striking example of the necessity for a more definite rule or rating.

It will be noticed also that the smallest soil stack which can be used is 4 in. in diameter, while 4-in. branches to water-closets are required in all cases. This in view of the fact that for private housework 3-in. soil pipes will generally be found more satisfactory than 4-in. and that the average size of modern water-closet traps is 2½ in. in diameter, so that it is superfluous and wasteful to require 4-in. branch from the main closet branch to the closet or from the soil stack to the closet, to take the discharge from this 2½-in. trap, which in turn is supplied with water from a flush pipe only 1½ to 2 in. in diameter. For this purpose 3-in. branches are all that is required.

Again, 2-in. branches are required for urinals, whereas the average urinal seldom has flush enough of water thoroughly to scour a 1½-in. pipe, which is more than sufficiently large for the purpose. A 2-in. pipe and trap simply acts as a small cesspool, and is not nearly as clean as a smaller pipe would be.

Minneapolis goes more into detail, although the number of fixtures allowed is based on guess-work pure and simple, and as such is of no more value than that of the New York code as a guide to others where unusual conditions are encountered. The best that can be said for the Minneapolis code is that the allowance is perfectly

safe and the method followed is better than any of the other methods given in the four cities we have selected for comparison. The Minneapolis requirements follow:

"The size of any soil pipe receiving the discharge from water-closets shall depend upon the number of such closets discharging into it, and shall not be less than that given in the following table:

Diameter.	Number of water-closets allowed.
4-in.	1 to 30 closets
5-in.	30 to 50 closets
6-in.	50 and over

"When it is not practicable to run as large a stack as above specified, the inspector may allow the use of a smaller size, provided that no stack shall be less than 4-in. internal diameter."

Right here now let us point out an inconsistency which reflects the slavish following of precedent by the craft at large and compilers of codes in general, instead of experimenting to satisfy themselves and then calling for what is right.

The first item in the table allows from 1 to 30 closets to discharge into one 4-in. stack. Yet in the closing sentence of that section they prohibit the use of any soil pipe smaller than 4-in. diameter.

A 4-in. pipe has slightly more than double the capacity of a 3-in. pipe, according to which a 3-in. pipe ought to be able to take care of one-half of the 30 closets they allow to a 4-in. stack, yet they absolutely prohibit the discharging of 1/15 its capacity into a 3-in. pipe. Such an inconsistency reflects no credit on the trade or on those responsible for the plumbing codes. Three-inch soil pipes have been too long and too generally used in practice to prohibit the use in codes for private housework where only one bath-room discharges into them.

San Francisco, in its usual brief way, which puts the right size to use up to the plumber or designer, sets a minimum size and dismisses the subject in the quickest and easiest possible way. Reproduced in full the section reads:

"Soil Pipe, Size.

"Sec. 29. No soil pipe of an inside diameter less than 4 in. shall be permitted."

"Only this and nothing more." Could anything be less satisfactory to the plumber or architect who must lay out the work for a 30-story building having 10 water-closets on each floor? Think it over for a moment! We have given you all the data contained in the four codes we are considering, you have your practical experience back of you; now, how large a soil pipe would you run for a building of that size, and with that many fixtures? Can you figure it out? Well, if you can't, no code yet compiled will help you, and a code which does not cover this important point is incomplete and unsatisfactory.

So far we have been pointing out that most of the sizes of pipes specified have been too large. We wish to emphasize the fact, however, that our remarks apply only to those specific cases which we have pointed out. There is just as much danger of erring on the other side by making the soil stacks too small, and this is actually what happens in a great number of cases. Instances are not wanting of drainage systems in which the soil stacks were not of the right capacity for the work they were to perform, and, as a result, the air became compressed within the pipe by the descending column of water and forced water out of the closet traps onto the floor.

The only way to determine the size of soil pipes is to calculate them, although for the sake of simplifying a code, in addition to the rule or formula for determining the size of soil stacks, its framers might likewise compile a table giving the number of closets—or the equivalent in other fixtures—that can discharge into pipes of different diameters. The size of pipe required, or the rule or formula for determining it, must be based on the amount of water per second that will be discharged into the pipes, and the only rule known to the writer for figuring the right size of soil pipes to use in unusual cases, is the rule of J. J. Cosgrove, which assumes a velocity of 20 feet per second in the stacks, a flow from one-quarter of the fixtures, then determine the size of pipe to take care of that flow. This rule has been used successfully in large works, has been checked up with other successfully operating installations, and has never been found lacking. In addition to this, it is simple and can be used by any one. In view of these facts, until such time as better rules and formulas are devised, or this one improved, it would be well to use it as a basis for determining the size of soil and waste stacks to use, assuming that a 3-in. stack and 3-in. branch waste to a closet fixture is the minimum permissible.

Down in New Orleans they go to extremes in the size of soil pipes required. According to their code:

"Soil pipes are never to be less than 4 in. in diameter. If more than six water-closets discharge into it, the soil pipe must be 5 in. in diameter; and in buildings where more than 12 and up to 36 closets connect, it shall be 6 in. in diameter.

Here we have Minneapolis allowing 30 water-closets to discharge into a 4-in. stack, and its opposite on the Gulf, New Orleans, limiting the number to six. Minneapolis permits from 30 to 50 water-closets on a 5-in. stack, New Orleans limits the number to 12. In Minneapolis 50 closets can discharge into a 6-in. stack, while in New Orleans 36 is the highest limit allowed.

Surely, then, there is occasion for the craft to get together on the sizes of soil and waste stacks, and it is to its discredit that some definite knowledge has not been obtained long before this time. Steam heating of buildings is a new business, compared to plumbing, yet notwithstanding the newness, the size of steam mains and returns is somewhere near a working basis. Why shouldn't the plumbers do the same thing?

COATING IRON WITH LEAD.

To coat iron with a covering of lead which will be in absolute metallic contact, states the "Chemical Trades Journal" is a difficult operation. Valves and small fittings made of iron well galvanized on the exterior may be homogeneously covered with lead in the workshop by any mechanic. The method consists in immersing the piece to be coated in water to which a few drops of sulphuric acid have been added. Then, while in the acid water, the piece is readily amalgamated in the usual way by squeezing mercury through close-woven cloth all over its surface and thoroughly rubbing it in. The excess mercury is rubbed off and the piece carefully dried without heat, and then immersed in a bath of lead, which should be well above its melting point, so that it would not tend to solidify by introduction of the cold piece. The casting may be withdrawn after about 20 seconds, and will be found to be homogeneously covered with lead. This method requires the piece to be galvanized before applying the lead, and the galvanizing must be in good condition, otherwise the subsquent amalgamation will be imperfect and present an unsightly appearance.

PROTECTIVE COATING FOR MACHINERY OR SUPPLIES TO BE SHIPPED TO THE TROPICS.

Editor "Domestic Engineering":—We are executing some work for shipment to a tropical climate, the specification of which calls for a coating consisting of white lead and tallow, to be applied to the finished iron and steel surface as a protection, but as we are not familiar with the proportions of the mixture, beg to ask whether you can give us this information. It is composed of white lead and tallow, and what we desire to learn is the proper portion of each ingredient and the manner of mixing. If you can give us this information we will appreciate it, and desire to thank you in advance for the favor. T. & L. S. Co.

The usual proportions of white lead to tallow for the purpose required are one-third white lead and two-thirds tallow. They should be heated till boiling and continually stirred until the whole mass is homogeneous and of a thick creamy consistency.

The best mixture for the purpose is the following:

White zinc	30 parts
Lamp black	2 parts
Tallow	7 parts
Vaseline	1 part
Olive oil	3 parts
Varnish	1 part

Boil 15 minutes; add ½ part benzine and ¼ part turpentine, stirring while boiling gently until the whole mass is uniform. Apply while hot. Both mixtures should be applied hot. They can easily be removed by means of a rag when the machinery reaches its destination.

THE CURE FOR THE BUM DIE.

Editor "Domestic Endineering":—I have two or three solid dies that do not seem to take hold upon the pipe easy when I want to start them on. What can I do to fix them so that I can do the work? "Sam."

If we were in "Sam's" place we would go to the back door of the shop, taking those bum dies with us and we would throw them upon the scrap pile. There is nothing that is more exasperating to the fitter or plumber who desires to make time and a good job, than to have such tools put off upon him. It spoils the temper, wastes a lot of time and wears out a lot of strength that might be used on the job to much greater advantage for ali parties concerned. No, "Sam," don't monkey around in different ways trying to force the die upon the pipe, provided you have worked off the rim raised by the cutters. If the die won't then take hold with an ordinary amount of common-sense and energy expended, why, get a die that will. We can recommend most any of the reliable adjustable dies that are in the market. Some fitters prefer one make, while others like a different kind. They have various points of merit and you can try them out and suit yourself. There are good solid dies to be had, but they do not work after the fashion of the one you have described. Quit worrying and fussing. Get rid of those dies that are on the bum and obtain a set that will do the business. When you have such a set, take care of them. Wipe them up when night comes and have a small box inside the chest into which you can put the dies so that they will remain separate from the rest of the tools and not get banged all around by the heavy wrenches, the chisels and the other tools.

FASTENING THE COIL TO A BRICK WALL.

Editor "Domestic Engineering":—I have a line of coils to put up and they must be hung to a brick wall. How shall I arrange it so that the screws shall not pull out of the brick? H. L. D.

If the floor is level you can lay out the work so that the hangers will give the correct pitch to the coils and then you can tell exactly where the hangers are to go. Now drill holes in the wall somewhat larger than the screws and in these holes drive some wooden plugs. You will then have small difficulty in putting the screw into the wooden plug.

CLOSING A LEAK.

Editor "Domestic Engineering":—The other day I had a small job of trying to stop a leak on the bottom side of a lead pipe. I could not do it with a soldering iron and tried an experiment with the wiping cloths. I got the pipe quite hot and the wiping solder also and then poured some of the solder on the cloth and swiped it up against the under side of the pipe just where the leak was and succeeded in making good the difficulty. If some care is taken this will do the trick every time if the hole is not so large as to admit enough solder to stop up the pipe. I thought that this might be of interest to some who were not on to the dodge and so I send it in for you to print or not as you may see fit. "Jk."

We are glad to note that some of the boys occasionally come across with some of the tricks of the trade. Here's to more strength to your arm, "Jk," that you may again take up the pen and send us some other interesting practical pointers.

POINTERS ON LEAD PIPE.

Editor "Domestic Engineering":—Can you give me some information on the weight of lead pipe and also the different grades? How many sizes are there under the 1-in. size? A. R.

There are five sizes (including ⅜) under the 1-in. size, the ⅝ and the 7-16 being the odd sizes. Some manufacturers make, or handle, six or seven different weights of lead pipe. The heaviest is AAA, next AA, then A, B, C, D. and E. These grades differ in weight per foot. For instance, lead pipe, ½-in. size, of the AAA quality, would weigh about 3 lb. per foot, while the same size of letter E would weigh some 9 oz. per foot. A list from the makers will give you more complete information in the matter.

Climbing the Ladder.

By "Noswad".

Chapter II.

My next job was with a Mr. Frank Wilson in the same city. (The names mentioned in this series are for obvious reasons fictitious, as I have no doubt most of them are very much alive.) He took me out to the work, which was on an eight-suite block in the Italian quarter.

The plumbers were the only Americans employed on the building, the remainder were Italians. The architect and construction-boss were the same nationality. The only Italian plumber in the city had lost the contract for some reason.

The roughing-in was well on the way to completion. The lead-work was almost finished. Wilson was wiping in the lead himself. I extended the stacks to the roof and flashed them and ran the water-supply lines.

One afternoon all four us were working around one of the stacks on the first floor, all in a bunch, when there was an awful crash, half a dozen bricks had fallen amongst us from the roof, one just missing the boss's head by an inch or so. I guess we were some scared for a moment. Wilson, who was a ruddy-faced man, went as pale as death and shook like a leaf.

I tell you it was a pretty close call for the bunch and we kept apart as much as possible from that time. We felt quite sure it was no accident. The men were mad because their countrymen had lost the contract. I then learned they had been hostile all through the job. The fun commenced when we came to test out those stacks.

There were two stacks with four bath-rooms on each four-inch stack, one more bath-room than was allowed in that city at the time, as you will see later.

If ever I saw a sieve it was that roughing-in up to the second floor. Six wiped joints on that job leaked and had to be rewiped. I never saw prettier shaped joints, but Wilson had used coarse solder, which I found was his habit in order to hold the heat, but this time he had it a little too coarse.

The other two boys had been sent to another job, so the boss and I got busy making the joints tight. It took nearly a day to fix them, and even then there were two or three suspiciously damp-looking places. Those boys had never seen inside and outside calking-tools. They had just sent the lead home with one blunt calking-iron, and most of the joints had two pourings instead of only one. On the joints I had fixed on both stacks from the second floor to the roof, there was only one small leak. I had my own inside and outside irons and I used them.

For some of the boys that have never seen this kind of tool, I may say they are a pair of ordinary calking-tools with about an eighth-inch edge and the face of each bevelled in opposite directions. (See Fig. 1) By using these tools the lead in the hub is formed as shown in Fig. 2 when finished, and makes a most reliable joint, forcing the lead tight to the sides. The boss knew as well as I there was likely to be trouble with the inspector, so at this point he turned the job over to me, telling me to 'phone the inspector and immediately it was passed jump for the wires and let him know; then he skipped.

I let the water out of both stacks to take off the strain, then got the office. After waiting a couple of anxious hours, the inspector showed up. The stacks were filled again and ready for him to inspect. As soon as I saw that inspector I knew there was trouble ahead in plenty. He was a keen one; he overhauled the job from end to end, then snapped out: "Damn poor job, leadwork twisted like a dog's hind-leg." "How many leaks did you have? The cellar is like a swamp." "You've got one closet too many on each stack." "Who's the contractor?" I told him, Wilson. "Where is he?" "Don't know," I replied. "Well! You had better get him. Can't pass this job, you will have to tear it out." I guess I must have looked pretty blue, for after a while he turned to me again and asked me in a quieter tone if I had installed the whole job. I told him no, and pointed out my share of it.

Fig. 1.

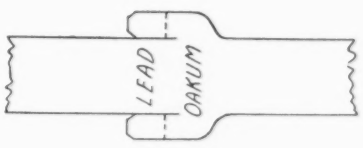


Fig. 2.

Then he fired up again: "Damn mean business to leave you to stand the brunt of it. Get Wilson here in an hour's time and I will be back by then—"

I guessed I could see my finish, and I was getting pretty mad too. I was picking up the tools when the inspector came back and said he would look the job over again and if he could find nothing else wrong he would let it go at that, and to tell Wilson to get in better work and stick to the rules in future— Gee! Wasn't I relieved, but I had a bad half hour— Ever been up against it that way, boys? I'll bet you have; some of you. Don't feel good, does it?

I did not 'phone, I was too mad. I took the first car and went straight to the shop. The boss was there. "How did it go?" says he, before I could speak. "He passed it," I replied. "Good for you, here, have a smoke," and he handed me a half-dozen good cigars. He was a pretty good scout after all, I thought. I told him what had happened. He heaved a big sigh, and said he had made a mistake in his estimate and got out of it by only running two stacks. Guess he won't do it again in a hurry.

Next day I was back at the building running the gas-lines. The stocks and dies with which I put in the water-supply lines had been transferred to another job, those I scared up in the shop and brought with me were bum. Say! how I did work to put in those gas-lines. ⅜-in., ½-in. and ¾-in.-pipe was harder than cutting 2-in. with an up-to-date stock.

Then again I had to cut all the nipples required on the job. The boss did not believe in buying nipples, using up the odds and ends on each job, which is certainly false economy; as any short pieces over can be threaded in the shop by a kid, and can always be used up.

I might say here that it is a good thing, when you are going to cut off a piece of pipe from two to six inches long, to put a thread on one end first, then cut. The other end of these small pieces can be threaded later in a nipple chuck, thereby making a considerable saving in a

year's time, from scrap that would otherwise be thrown away.

I always believe in having a good stock of galvanized nipples, from close to 8-in., on hand—galvanized can be used for either gas or water. There is money in it, especially with such dies as I was using.

It sometimes took quite a minute to start a thread: I often had to cut nicks lengthwise in the end of the pipe with a file before it would start at all. Perhaps some one will say, "Why didn't you quit the job?" What was the use? It is the exception rather than the rule to find good tools in most small shops. Yes! And in some big ones.

I can't blame the masters altogether, for some men handle tools and throw them around in the dirt as though they were brick-bats, instead of expensive tools.

I was next sent to finish the roughing-in of a house in a small adjoining town. The stack and leadwork were already in, so I finished the revents and ran the supplies and tested out. Here again there were two leaky joints through coarse solder. I rewiped them and sent for the inspector, whom I found was also mayor of the town, furniture man and undertaker. A fairly good combination! Nix! He looked the job over in a pompous manner and told me to "let 'er go." I was very much amused. His was a political job, for I don't believe he knew a waste-pipe from a vent—one strikes this class of inspector in small towns. What a difference in this man and the smart practical plumber-inspector I mentioned previously.

From there I went to rough-in a half dozen houses on adjoining lots, which was a pretty nice job. Towards the end of this job I discovered, what I had suspected for some time, the boss was a booze-fighter.

I had received no pay the last week, nor had the other boys. When Saturday night came we went to the shop. There was no boss. We waited almost an hour, then went home. I returned after supper to find him still out. I hunted him up in a saloon close by and found him about "half-shot." He said "he hadn't the money," could not get it until he could draw on a contract, would give me some next week—I told him I should stay at the shop until I got it. Went back and sat in the office and waited. In half an hour he came and handed me the wages due. I said "good night and good-bye."

(To be continued.)

LIGHTING NEWS OF INTEREST TO THE PLUMBER.

Many new effects in lighting goods are on the market now for fall, and plumbers who have been making a special feature of this sideline will surely find it to their interest to look over the field with a keen eye before placing their final orders. Not only in the gas and electric-fixture lines are many new effects to be had, but in the globe and shade lines.

It does appear that the manufacturers of both the fixture and shade and globe lines have gone the limit, so to speak, to create and present to the buying public that something new, which buyers are constantly seeking.

So far as the fixtures are concerned, the best creation of the season is that shown by a Cleveland (O.) manufacturer, who has brought out a shower that can be used either for gas or electricity, and the one-eighth inch or less gas-pipe is entwined about the hanging chains of the shower in such a manner that it is really difficult to detect the pipe without close observance. The pipe, however, is the same color as the links of the chain, either brushed brass or in the oxides.

New shapes in pan showers are also being shown and there is reason for believing that these lines will prove just as popular this season as they were during the last two seasons. However, a copper pan is a new creation for the pan showers, and the effect is a decidedly novel one.

Combination gas and electric fixtures are to be had this season in an almost endless variety. Of course, the glass shades for either gas or electricity have a great deal to do with the beauty of the piece, and these can be changed to suit the individual taste of the retail buyer.

Light cut shades and globes are becoming more popular than ever, and the manufacturers of the globes and shades have declared the coming fall season will experience the heaviest sale of light cut shades and globes for lighting fixtures yet known. A factory at Follansbee, W. Va., and one in Pittsburgh, Pa., are showing a new line of cut shades in light cuttings which are the most remarkable ever presented to the trade.

Quite a distinctive feature in the portable line this season will be found in the new standards. The latest creation in the standard line is an art-pottery base in matt glaze, and also in the coppers, brasses and oxide finishes. These standards are being made by only two factories in the United States, one in New Jersey and another in Parkersburg, W. Va. The creation is really a new one, and the retail price will be found to be such that the new idea is within the reach of all who use either gas or electricity.

An eastern portable manufacturer is also bringing out a new line which has early promise of proving a popular seller. These lines are known as the "Period Series," and are almost copies of the art creations of centuries ago. The majority of these portable and electrolier lines possess open brass art designed shades, underneath which is placed either period-art glass or silk-tapestry pieces, under which the light is placed, and when burning a perfect harmony of color is obtainable. While to the uninitiated it would be presumed that these lines of portables and electroliers would be costly, they are quite to the contrary—very reasonable in cost.

New shapes in shades, globes and domes are being shown now, and the treatments of each line are more varied than ever before attempted. Those domes possessing a new scenic effect treatment are very attractive, and there is not too much work on them to make the piece offensive, either to the eye or in the distribution of light.

Colonial effects in the upright and inverted-gas and electric shades, or those lines possessing the panel effects are more numerous than ever, and the color treatment on the outside of each is also the work of new ideas.

There are several new lines of iced-effect shades on the market this season, and they produce an effect when placed over a light that has never before been brought out.

Salesmen for all factories making lighting lines and lighting glassware are now on the road, and while the plumbers should provide themselves with early stocks, they should not forget the idea that more than one line of goods is on the market.

Suburban Life.

"Mr. Subbubs, your house is on fire! Hurry home and save your belongings!"

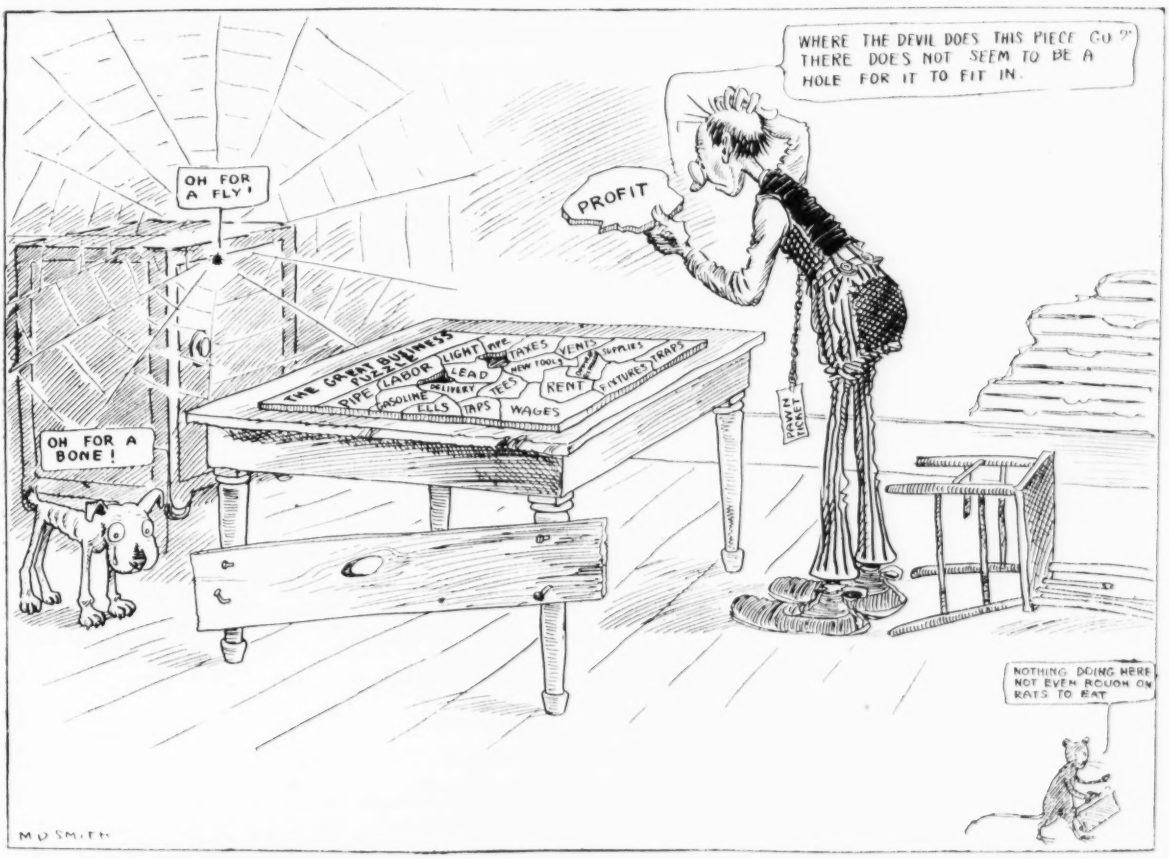
"Nothing in the house worth saving. Everything we had is loaned out."—Louisville Courier Journal.

Domestic Engineering "First-Aid-to-the-Injured"

Postal Card Cartoon—No. IV.

"The Danger of Under-Estimating"

Nearly 5000 of our missionary postal-cards have been called for and distributed. Here is another winner that you can use to advantage.



A SERIOUS MISCALCULATION. DO THEY DO THIS IN YOUR TOWN?

Did we ever have to sit down and ask ourselves that question? We did.

Is it wise to continue this forgetfulness? It is not.

Forgetfulness of this kind by others in the trade is detrimental to the interests of all. If Jones lands a contract by forgetting something and loses money, you help to pay the bill.

You should educate Jones, and others like him to their profit and yours. This postal-card will help you to do it in an unofficious way. Write for as many as you can use. We will send them to you free of cost.

PERSONAL MENTION.

John A. Peters has accepted the position as manager of the John Douglas Co.'s branch office at Minneapolis, Minn.

B. O. Tilden, president of the American Sanitary Works, New York City, who left that city on April 20th with a party of specialists to conduct a national campaign in the interest of sanitation, arrived in Los Angeles on Thursday, August 10th, in his automobile, bearing evidence of a desperate battle with the treacherous river bottoms and gulches of New Mexico and Arizona following two weeks of the heaviest rain ever known in the Southwest. The tourists have covered more than 10,000 miles of their 25,000 mile tour through the United States, British Columbia and the Hawaiian Islands. The trip from New York was made by a circuitous route with side trips of from 100 to 500 miles, branching out from 20 cities on the trunk line across the country. The tourists are at present in San Francisco, from which point they will sail to Honolulu, taking the automobile with them for a thorough tour of the Hawaiian Islands.

J. R. SMITH & CO. VISITED BY FIRE.

J. R. Smith & Co., plumbing contractors and manufacturers of plumbing specialties, on Park avenue, Mechanicville, N. Y., had their factory and plumbing establishment damaged by fire on Wednesday, August 2nd. The fire burned a large portion of the roof, but most of the damage was done by water. The loss was covered by insurance. The fire will cause no interruption in the firm's business.

SANITARY EARTHENWARE SPECIALTY CO. BUYS THE BELL POTTERY CO'S. PLANT.

Although effort was made a number of times during the last four years to dispose of the plant of the Bell Pottery Co., at East Columbus, O., not until the last few days was David E. Putnam able to finally effect a sale. The Sanitary Earthenware Specialty Co., of Trenton, N. J., bought the plant together with 24 acres of land, the sale being completed finally early this week.

Because of the long idleness, the plant was not in the best of condition, but Wednesday of this week contractors were put on the job making repairs, and building a new road. It is possible the Sanitary Earthenware Specialty Co. will be enabled to place the property on the active list ere another month passes. The officers of this company are: President, Arthur Plantier; vice-president, John A. Moore; secretary-treasurer, Edward T. Swetnam, and it makes all kinds of plumbers' earthenware specialties, one of its lavatories being quite well-known in the trade. As the Bell plant was built for manufacturing domestic lines of pottery, quite a number of changes will have to be made before sanitary ware can be started.

The Sanitary Earthenware Specialty Co. was started in 1896, and since then it has more than doubled the capacity of its Trenton plant. Increased business caused the officials to consider opening a branch in the Central West, and Columbus was selected as a logical location. Mr. Swetnam will be placed in charge of the Columbus office, although main offices will continue to be maintained in Trenton.

The Bell Pottery Co. was formed in 1903 by William and Edward Bell, of Findlay, O., and over $200,000 was spent on the pottery, but it was never a success.

WESTERN TRADE GOLF MEET.

The Western Trade Golf Association met in ball-searching conclave at the Skokie Country Club, August 16th. Several enthusiasts reached the links in the morning, but the main body left Chicago shortly after noon. At Skokie they were hospitably greeted by W. B. Dale, the Skokie host par excellence.

After everybody had felt at his belt at the back, adjusted shirt-sleeves to hair-breadth precision and tested the resistance of the atmospheric turgidity by preliminary swishes of the clubs, play commenced in earnest.

The contest was played under the new ruling of J. P. Dugger's designing with a blind handicap and blind bogey. Friend Dugger is a sportsman of true caliber and his aim has been to have a contest in which the fighting qualities of every player will be manifested to the last whirl of the mid-iron and waggle of the putter. The new combination does this successfully and adds to the fascination of the royal game. The score is presented herewith:

	Qual. r'nd.	Gro. 18 Ho.	Hdkp.	Net.	
1st Flight—					
F. J. Douglass	88	91	2	89	
John McDonald	90	91	4	87	Runner Up.
J. W. Watson	93	85	7	78	Winner.
R. R. Sterling	97	99	11	88	
2nd Flight—					
S. O. Dugger	97	92	11	81	
A. McDonald	98	92	12	80	Runner Up.
J. M. Stannard	98	91	12	79	Winner.
P. Blatchford	98	102	12	90	
3rd Flight—					
W. C. Matlack	102	105	16	89	
D. E. McCabe	104	100	18	82	Runner Up.
H. M. Sedgwick	103	96	17	79	Winner.
J. P. Dugger	108	106	22	84	
4th Flight—					
W. B. Dale	111	94	25	69	Winner.
L. Huckins	112	108	26	82	
H. E. Whitney	112	99	26	73	Runner Up.
H. E. Pursell	110	113	24	89	
5th Flight—					
F. J. Dougherty	118	112	32	80	
E. Buehler	117	111	31	80	
H. E. Keeler	120	101	34	67	Winner.
J. F. Tuttle	117	105	31	74	Runner Up.

Blind Bogey—86.

The weather conditions were not amiable and the playing was concluded in the reign of Jupiter Pluvius. The adversities of moisture did not dampen the golfing ardor, however. After the battle the country club supplied the missing links to the day's enjoyment. D. E. McCabe, vice-president of the association, presided at the feast, at which no massé shots were allowed, and every participant was obliged to keep at least one foot on the floor. At 8.32 p. m. the tea-party returned home to secure the latest editions about the aviation-meet.

DETROIT SCHOOLS, EIGHT 2-SWEEPER PLANTS.

Sometime since the city of Detroit decided to install vacuum-cleaning in its schools. Specifications were drawn up by the consulting engineers, assisted by three mechanical authorities of national reputation. These specifications established certain conditions and called for plants to be submitted in competitive trial. The scoring was a possible 100 points; 60% for ability to do work in schools, 40% divided among type of machine, cost of operation, accessibility of parts, simplicity, etc. At the end of an exhaustive trial results were tabulated and summarized. The McCrum-Howell Co., New York, an-

nounces that its "Richmond" plant made the most nearly perfect score.

Reports and recommendations were made under which the eight contracts were awarded to the McCrum-Howell Co., at their contract prices by a vote of 15 to 2 by the full Board of Education. The award was protested and vetoed by the mayor but after a drastic investigation the Board of Education reawarded the contracts to the McCrum-Howell Co., over the mayor's veto, by vote of 14 to 2, which action, of course, is final and is a distinct tribute to the value and practicability of "Richmond" vacuum-cleaning systems in schools.

"RADIATION."

"Radiation" is the title of an attractive house-organ, issued by the United States Radiator Corporation, Detroit, Mich. It made its first appearance on July 1st. its editor is George Albert Moore and he shows his abili-

Front-Cover Design of the First Number of "Radiation."

ty in the interesting table of contents furnished in the initial issue. Among the interesting articles are "Heat Rays," "Story of the Match" and "Fuel and Draft." Those interested in heating literature of a high grade can obtain a copy of this new publication upon application to the company.

THE "AMERICAN" CLOSET AND VALVE.

The American Valve Co., Ft. Wayne Ave. and St. Joseph St., Indianapolis, Ind., has placed on the market its "American" closet and valve, after subjecting them to

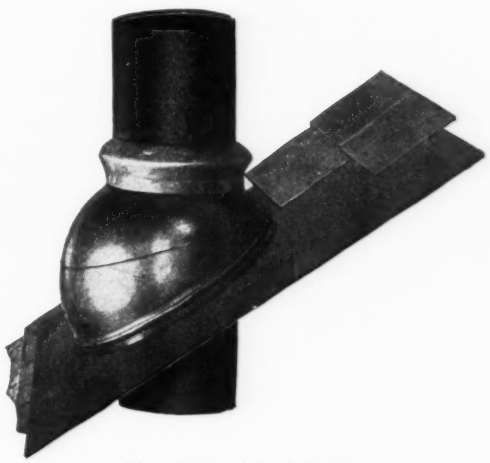
The "American" Closet-Combination.

many severe tests under the hardest conditions of usage. The tank differs from the ordinary closet-tank, in that it contains nothing but water and a cushion of air. In the literature issued by the company, it says, "The American is marvelous for the things it leaves out." The operation of the closet is effected by city water-pressure. The valve regulates the amount discharged and the force of the delivery accomplishes the result required with about one-third less water than is ordinarily needed.

Full information concerning the device is published in a neat pamphlet, which can be obtained from the company upon request. In writing for it, mention "Domestic Engineering."

THE "BULLARD" ROOF-FLANGES.

A roof-flange immediately adjusted to varying pitches of different roofs; a roof-flange with which no soldering is necessary; a roof-flange that is rustless and not more expensive than the types in ordinary use; such a roof-flange should be of special interest to plumbers. The



The "Bullard" Roof-Flange.

illustration shows a flange which combines all these meritorious features.

The "Bullard" adjustable galvanized iron and copper roof-flange consists of two iron or copper balls, a flange-apron and a lead collar. The balls and apron are stamped out of cold-rolled 26-gage iron or 16-oz. copper. The lead collar encircles the flange at the top and is for calking. No leakage at the top opening takes place. There are no seams, raw edges or bolts. The flange adjusted stays put and the workman leaves it with the knowledge that its service will be permanent and without weakness through defective soldering, for no solder is required. The manufacturers, the Bullard Specialty Co., Tiffin, O., issue an attractive booklet devoted entirely to this specialty and it can be secured for the asking. In writing, mention "Domestic Engineering."

"ELECTRICALLY CONTROLLED HOT-WATER HEATING SYSTEM."

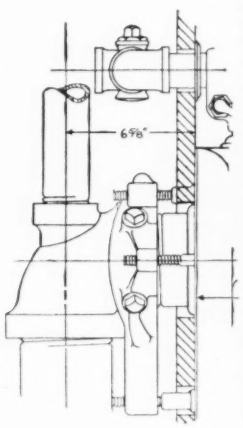
R. E. Dewey, Grand Rapids, Mich., is sending out a small booklet whose title is "Electrically Controlled Hot-Water Heating Systems." In its outset the writer maintains that electric heat-regulation on hot-water heating systems has not proved effective because the temperature of the water attains such a high degree that the temperature of the room continues to rise long after the draft has been closed by the room-thermostat. This is due, says Mr. Dewey, to the fact that the temperature of the water responds to the fire more rapidly than the air in the room responds to the radiation. Mr. Dewey contends that a successful heat-control of a hot-water system can only be obtained by co-operative control of the draft being exercised by the air of the room and the temperature of the water in the heater. The Dewey hot-water thermostat is wired in connection with the room thermostat, using the same thermostat and the same motor and batteries as are now in use. The advantage claimed is that the temperature of the water can be governed in accordance with climatic conditions. The hot-water thermostat is set at any temperature desired, and the draft will remain

closed as long as this temperature is maintained. A complete description of the device is given in the booklet, which can be obtained by all those interested in heating matters from R. E. Dewey, Grand Rapids, Mich. When writing, mention "Domestic Engineering."

ATTRACTIVE WATER SUPPLY LITERATURE.

The illustration shows the attractive series of booklets and pamphlets issued by the Flint & Walling Mfg. Co., Kendallville, Ind., concerning its "Hoosier" pneumatic water-supply systems. This assortment is complete, each booklet representing individual treatment of some specific phase of water-supply. The most interesting of these is undoubtedly catalog No. 71, which has been written for the education of the consumer. The dealers' edition is catalog No. 70, and it is complete, with profitable hints for business-getting. A complete set of this literature can be obtained upon application to Flint & Walling Mfg. Co. Mention "Domestic Engineering" when you write.

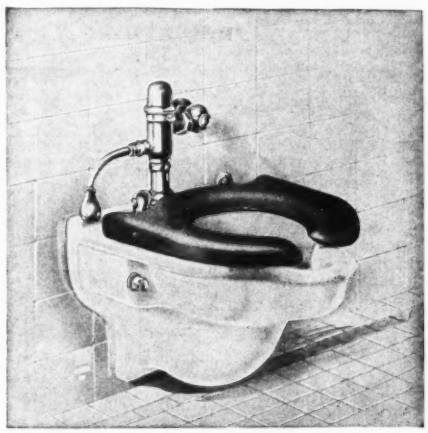
Attractive Water-Supply Literature.



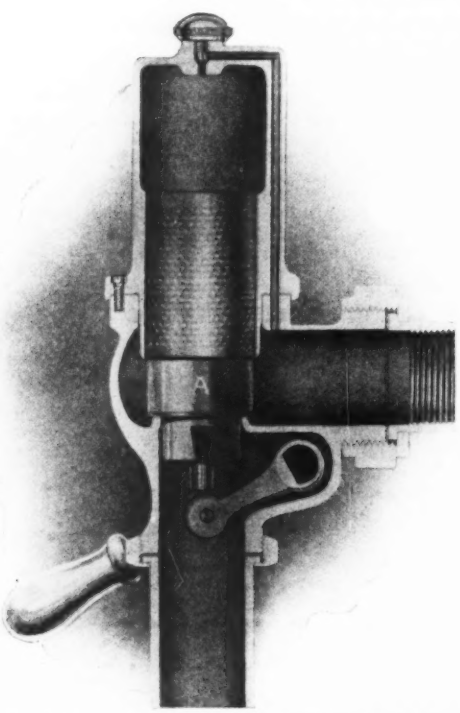
"Jetector" Connection

THE "JETECTOR" WALL-OUTLET CLOSET.

The Federal-Huber Co., Chicago and New York, is experiencing considerable success in the introduction of its "Jetector" wall-outlet closet, which is particularly adapted to municipal and state buildings, where cleanliness, efficiency and economy are desired. This type of closet is secured directly to the soil-stack, without touching the wall or partition at any point. It is, however, placed close to the wall and occupies but little space, requiring less piping than generally used, and thereby diminishing the installation-cost. In its flushing it is also economical, operating with from two to four gallons of water, as compared with five or six gallons, the usual amount required. It is claimed by the manufacturers that it cannot clog out of easy reach, its only contraction being four inches inside the water-way. The "Jetector" is self-venting, all foul gases being removed by an instantaneous and powerful downward suction. A desirable sanitary feature is its elevation above the floor, so that mopping can be accomplished beneath it without difficulty. In its action, the contents of the bowl are discharged in one second's time. The manufacturers are sending out special literature which illustrates and describes the chief features, emphasizing its construction with a sanitary seat and lip, features which are receiving the approval of advanced sanitarians at the present time. Complete catalog of all the company's plumbing supplies and brass goods can be obtained upon application. When you write, mention "Domestic Engineering."



The "Jetector" Wall-Outlet Closet.



Sectional View of the "Cleveland" Flush-Meter Valve.

THE CLEVELAND VALVES.

The Cleveland Flush Meter Co., Noble court and W. Second street, Cleveland, O., reports good business for the year with its Cleveland flush-meter valves. These will fit any standard equipment, and can easily be applied to either old or new lavatory work. In the sectional valve shown in the illustration, it will be noted that the isolated pockets shown on the working-part of valve "A" holds water, thus providing lubrication and packing, and insuring its positive action. The Cleveland valve is simple in construction, durable, and economical in water-use. It occupies but small space and is easily installed. Special descriptive literature is provided for all applicants, copy of which can be obtained upon request. In writing, mention "Domestic Engineering."

WILL DEAL IN PLUMBERS' AND GAS-FITTERS' SUPPLIES.

The Fravel Hardware & Supply Co., Pataskala, O., has been incorporated for the purpose of handling a full line of hardware, including plumbers' and gas-fitters' supplies. The incorporators are: Daniel J. Fravel, Charles O. Fravel, Samuel H. Fravel, John W. Fravel and Clarence C. Fravel. The capital stock is $15,000.

THE METAL MARKET

SMALLER PRODUCTION OF PIG-IRON.

While the actual output of pig-iron in July was slightly larger than in June, this was accounted for by the additional day and the daily rate of production was smaller. The average daily output was 57,840, which was the smallest with but two exceptions since December, 1908. The reduction in the output of foundry iron was large for the steel companies increased their working, and as a consequence iron of the grades rated as foundry have advanced in price. In Birmingham Southern No. 2 is now quoted at $10.25, whereas the ruling price for a number of weeks has been $10. This has caused an advance of 25 cents in the Cincinnati market. From all centers where pig-iron is sold the reports seem to be unanimous that the buying is very small.

The steel industry is in better shape than at any time this year, for the United States Steel Corporation is now producing ingots at the rate of 80 per cent of capacity. The unfilled orders on the books of that corporation were larger on July 31 than any time since the end of November last year.

Quotations are as follows:

No. 2 Southern foundry, Birmingham	$10.25
No. 1 Northern foundry, New York	$15.25 to 15.50
No. 2X Northern foundry, New York	14.75 to 15.25
No. 2 plain, Northern foundry, New York..	14.50 to 14.75
No. 2 Northern foundry, Chicago	14.50 to 15.00

OLD IRON.

The market has been very quiet and all class of scrap are in light demand except wrought pipe. Many rolling mills are closed and there seems to be little inducement for dealers to trade among themselves.

Quotations are as follows:

No. 1 yard wrought, long	$11.50 to $12.00
No. 1 yard wrought, short	10.50 to 11.00
Heavy melting steel scrap	10.75 to 11.00
Machinery cast	10.75 to 11.75
Wrought pipes and tubes	10.75 to 11.25
Malleable castings	10.50 to 11.00
Wrought turnings	7.25 to 7.75
Cast borings	7.00 to 7.25
Stove plate	8.50 to 9.00
Light iron	4.50 to 5.00

A REDUCTION IN COPPER STOCKS.

The report of the Copper Producers' Association issued this week was the most favorable issued this year. The production during July was smaller than during the previous month by 12,000,000 pounds, and the stocks of unsold copper were reduced 20,000,000 pounds. They are now smaller than at any time this year, and are about 32,000,000 pounds less than a year ago. The buying of copper during the week has been small, but the consumers in Europe continue to take large lots. The inquiries received by sellers of copper indicate that a number of consumers have only a limited stock. Quotations are without change and in large lots Lake can be had at 12.75 cents and Electrolytic at 12.62½ cents.

SPOT TIN AGAIN SCARCE.

The arrivals of tin from Europe this month have only amounted to 1,930 tons and there is none afloat at this writing. This has made consumers a little anxious and they have bought freely during the week. As a result stocks are scarce and prices have moved up rather rapidly. Spot tin is now held at 43.50 cents.

LEAD.

The buying has been more active than for several weeks and the very strange thing about the whole lead situation is that the small difference of only five cents a hundred pounds continues between the price in St. Louis and in New York. The price in New York is now 4.50 cents and in St. Louis 4.45 cents. The usual difference is 0.15 cents which is slightly less than the freight rate between the two places.

NOTES FROM COLUMBUS, O.

The contract has been awarded for the installation of a hot-water system of heating in the large house of the Progress Club, Parsons avenue. Schneider & Jacobs will do the work.

The firm of Hibbs & Evans has been awarded the contract for the heating and ventilating system in the school building to be erected on Dana avenue.

H. S. Holton, director of public service, has again called for bids for the erection of a superintendent's house and public comfort station at Goodale Park. Twice the bids ran too high for the amount of money at the disposal of the director, and all had to be thrown out. Bids will be opened for the third time on August 28th and it is hoped the contract can be awarded then.

Akron, O.—The board of health will attempt to regulate the work of plumbers and sewer-builders. An ordinance has been introduced in the city council to accomplish that purpose, and it has been given its first reading. The board of health has started an active campaign to have the ordinance become a law.

THE PLUMBER'S SECRET.

[A writer in "The Field" declares that there is a secret among plumbers known only to themselves, and handed down from father to son.]

What is thy secret, plumber? If it weighs
  On an already sorely-fretted mind,
    Come and unburden all thy soul to me!
Noting how sadly thou dost stand and gaze,
  I long to make amends for all my kind
    In love and sympathy.
Do I not know now through the vanished years
  Thine art hath been the mock and sport of men
Whose ribald scorn called forth thy secret tears,
  Who flayed thee ceaselessly with tongue and pen?

What is it that through ages handed down,
  From plumbing father unto plumbing son,
    Hath kept its virgin character serene?
Banish, I pray, thy melancholy frown,
  Remember that thy job is yet undone,
    And lassitude doth mean
An idle kitchen-range and uncooked meals
  For those who pay the guerdon of thy toil.
What saddening sights the casual glance reveals
  Of saucepans chill and kettles off the boil!

I have heard tales of secrets that have passed
  From sire to son what time the latter came
    To man's estate, and how the sad heir bore
A cloud upon his visage to the last
  That seemed to whisper of some secret shame,
    And smiled, alas, no more!
Then tell me, gentle fellow, lest thou burst,
  Even as yon pipe that shows the untinkered leak,
And, thus relieved, thou yet may'st be the first
  To cure such trifling damage in a week!

C. E., in "Evening News," London, England.

NEW ENGLAND NOTES.

Massachusetts.

Boston.—Acting Mayor Collins has approved a contract with Pierce & Cox for installing a heating and ventilating system in the Quincy school for $9,717. Other bidders were: J. J. Hurley & Co., $9,948; Commonwealth Heating Co., $10,497; James F. Dwyer, $10,800; Hern-Furlong Co., $10,088; C. H. Sanborn, $11,125; F. W. Zemier & Co., $10,996.—Acting Mayor Collins has also given his approval to a contract with the Hodge Boiler Works for furnishing and delivering boilers for various school houses, the contract amounting to about $2,500, and a contract with the New England Iron Works for retubing boilers in various school houses. The price of the latter contract is $2,180.

Holyoke.—The Holyoke Master Plumbers are considering a demand made by the journeymen through their union that the number of helpers allowed to the various shops be reduced. At the present time one helper is allowed for each journeyman employed, but the union desires this changed to allow but one helper to five journeymen except in shops where there is but one journeyman employed.

Quincy.—A contract for heating and ventilating the new county court-house building in this city has been awarded to Stone, Underhill & Co., of Boston. Their bid was $3,250.

Great Barrington.—The contract for plumbing in the new parish-house now being erected by St. James church has been awarded to James McManus, and that for heating to Robbins & Gamwell of Pittsfield.

South Framingham.—Work is progressing rapidly on the new plant of the Gurney Heater Co., which is in process of construction here. The buildings have all been roofed over and within a few days the engine is to be set up inside.

Fitchburg.—The city government has adopted a new set of plumbing regulations and copies are being sent out to all of the master plumbers of the city.

Boston.—The Boston "Post" in a series of articles on old Boston firms publishes an interesting review of the business life of Daniel A. Carr, who has conducted a plumbing and gas-fitting establishment in the West End for 30 years. Mr. Carr has been in the plumbing business more than 60 years, having done business in Framingham for many years before establishing his shop in Boston.

Pittsfield.—The firm of Collins & Dean, plumbers and gasfitters, who have been located at 37 West street, has been dissolved. The business will be continued by James Collins under the firm name of James Collins & Co.

Connecticut.

New Haven.—Proposals for construction, plumbing, heating and other work on the new post-office building at Wallingford will be received at Washington, D. C., until 3 p. m. August 29th.

Hartford.—Whiton & McMahon have awarded the plumbing contract on the Thomas W. Mohen house on Elm street to Edward Mahl.

Bridgeport.—Andrew D. Cooper, a prominent merchant, is erecting a handsome residence in the Brooklawn district. C. S. Eames & Co. have the plumbing contract.

Watertown.—Work on the enlargement of the Christ church gymnasium has been commenced. A. B. Bentley has the contract for heating.

Bridgeport.—C. S. Eames & Co. have the contract for plumbing and furnace heating in a house which is being erected on Wayne street for Gertrude S. Terry.—J. J. Scanlon is to do the plumbing in a brick and frame dwelling to be erected on Frank street for Charles Wilson.—Mrs. Julia Callahan is building a house on North Main street and has placed the contract for plumbing and heating with the Bridgeport Water Heater Co.

Bridgeport.—G. L. Beitner has the contract for the plumbing and furnace heating for the parsonage which is to be erected for the English Lutheran Evangelical church on Laurel avenue.

Greenwich.—The town committee has awarded the contract for repairs of various sorts on the public school buildings and Charles F. Mead has been given that for plumbing and heating work.

Winsted.—J. H. Holbrook is plumbing a cottage at the lake for E. E. Benedict of Waterbury. He also has a large plumbing contract for Rollin Norris on Town Hill, New Hartford, which includes the installation of a water system.

Waterbury.—The Walker & Pradhon Co. has been awarded the contract for the plumbing in William Meyers' two-family house on East Center street.

New Haven.—The United Association of Plumbers, by an agreement with the master plumbers, secured without friction, has established an eight-hour day in this city. This makes nine crafts in New Haven now working on eight-hour time.

Hartford.—C. A. Hjerpe has been awarded the contract for the plumbing at the Walnut Hill park convenience-station, his bid being the lowest of half a dozen received.

Waterbury.—M. J. Daly & Sons, Inc., have been awarded the contract for plumbing, heating, metal work and skylights in connection with the alterations at the city hall. Their bid was $5,699.

Bridgeport.—Carlson & Benson have the contract for plumbing and heating in two two-apartment houses which are to be erected on Fairfield avenue for E. N. Garrison.

Winsted.—Dr. D. D. Reidy, who is building a new residence on Main street, has placed the plumbing contract in the hands of J. H. Alvord.

Maine.

Lisbon Falls.—Douglass & Johnson, plumbers, suffered slight loss as the result of a fire in the Springer building recently.

Rangeley.—Melvin Tibbetts is to open a plumbing and hardware establishment soon. He has recently been employed by a local plumber and is an excellent workman.

Madison.—The Madison school committee has placed a contract with the Stone & Underhill Co., of Boston, for the installation of a new heating plant at the Western avenue school-building.

Vermont.

Brattleboro.—John Galvin, plumber, is installing two combination heaters in the Canal street school-house.

St. Albans.—S. D. Waterman who for the past three years has been associated with H. E. Wood & Co., is soon to open a plumbing and heating establishment in a store on Lake street. In addition to doing all kinds of plumbing, heating, tin and metal work Mr. Waterman will carry a line of stoves and ranges. He has had many years' experience as a plumber and has also traveled on the road for jobbing houses.

White River Junction.—E. E. Bagley & Co. have the contract for installing a steam-heating plant in the new residence of Professor N. E. Gilbert at Hanover, N. H.

Saxton's River.—F. S. Fuller & Co. have secured the contract to install the heating and ventilating in the new town-hall building at Townsend.

New Hampshire.

Franklin Falls.—L. J. Cherrier has been awarded the contract to install a ventilating system in the new school building to be erected at Alton.

Portsmouth.—F. L. Wood has the contract for plumbing in the play-house and public comfort station which is being erected on the city playground.

PATERSON MASTER PLUMBING & HEATING ENGINEERS' OUTING.

The Master Plumbing & Heating Engineers' Association of Paterson, N. J., held its annual outing at Coney Island, N. Y., on Saturday, August 5th. The party consisting of nearly 70 out of a total membership of 77 left Paterson early Saturday morning by train in time to catch the Coney Island steamer at Pier 1 at 9:45 a. m.

Arriving at Coney Island at 11 o'clock the party found an excellent breakfast awaiting at Stauch's Pavilion, which at once became the scene of a social reunion at which nearly 50 supply men were in attendance.

After this the large party wended its way to Steeple Chase ark, where the many diversions were enjoyed until nearly 3:30 o'clock, the time set for the annual dinner. This was also given at Stauch's, and it was a most elaborate affair. At its close Past-President James H. White introduced Frank J. Fee, of New York City, vice-president of the National Association of Master Plumbers, who said that he had enjoyed the Paterson master plumbers' hospitality and his meeting with them to the fullest extent but that he had no intention of talking shop to them on such a festive occasion as this, and he would only ask for the Eynon administration the loyal support of all those within his hearing. His remarks were received with applause.

The Annual Dinner of the Paterson (N. J.) Master Plumbers and Heating Engineers, Given at Stauch's Pavilion, Coney Island, N. Y., August 5, 1911.

Following this the happy party again devoted its attention to the enjoyment of the many attractions of Coney Island until 8:30 o'clock, when the homeward trip by boat was begun. For the convenience of the plumbers the boat stopped at Jersey City, where they boarded the train for Paterson. The affair was a most enjoyable success in every respect and it was not marred by a single accident.

The committee of arrangements consisted of the following gentlemen: Geo. S. O'Neil, chairman; Jas. H. White, secretary; John Baker, Robert E. Quinn, Jas. J. Mahar, Robert Beaumont and Frank Vreeland.

The guests of honor were: Frank J. Fee, New York City, vice-president of the National Association of Master Plumbers, and George Turner, Asbury Park, N. J., president of the New Jersey State Association of Master Plumbers.

The following manufacturing and supply concerns were represented: Alberene Stone Co., L. J. Ashbell Co., Boynton Furnace Co., Canton Art Metal Co., W. H. Crookston & Bros., Gorton & Lidgerwood Co., Jenkins Bros., Thos. G. Knight Co., McCrum-Howell Co., McNab & Harlin Mfg. Co., Marcy Stove Repair Co., H. Mueller Mfg. Co., Mason Mfg. Co., John S. Norton Co., Peerless Selling Co., Pierce, Butler & Pierce Mfg. Co., Richardson & Boynton Co., H. B. Smith Co., Thatcher Furnace Co., United Brass Mfg. Co., Wolverine Brass Works and Woodward & Wanger.

BUSINESS VENTURES.

Dixon, Ill.—William Shank has just opened an up-to-date plumbing establishment in the Stiteley Bldg., corner First street and Hennepin avenue.

Algona, Ia.—Mark Sarchet and George Holtzbauer have formed a partnership under the name of Sarchet & Holtzbauer and have opened a plumbing establishment in the Durdall Annex.

North Milwaukee, Wis.—The Ideal Plumbing & Contracting Co. has been incorporated with a capital of $16,000. The incorporators are Theodore Walch, Otto Seefeld and Ernst von Briesen.

Baltimore, Md.—W. G. Cornell Co. has just opened an office in the Munsey Bldg. in this city. This company installs plumbing, heating and lighting systems, its home office being in the Everett Bldg., New York City, and its branch offices in Boston, Washington and Baltimore.

Shelbina, Cal.—Connely & Sons is the name of the new plumbing and heating firm that will soon open up a business. Connely sr. has been in the hardware and plumbing business for 30 years. With him will be associated A. Connely, Art Connely, jr., and Lathrop Connely. All of them are well versed in sanitary and business matters and success is predicted for the Connelys.

Martin, Tenn.—The City Plumbing Co. has recently started in business.

Paducah, Ky.—Merritt & Arts have opened a plumbing and heating business in the Three Links Bldg.

Billings, Mont.—Hughes & Mitchell is the name of a new plumbing firm which has just opened an up-to-date establishment at 2822 Minnesota Ave.

CONTRACTS AWARDED.

Cincinnati, O.—Thomas J. Nichol & Co. have been awarded the contract for the installation of an up-to-date heating system in the Fritz Bros.' Cigar Co's. new factory.

Pasadena, Cal.—The E. O. Nay Co., 13 E. Colorado St., has been awarded the contracts for the installation of up-to-date plumbing systems in the McKinley grammar school and in the high-school building. The two contracts amount to $4,150. The two jobs are to be finished before September 20th.

Winona, Minn.—The M. Toye Estate has secured the contract for the installation of a modern plumbing system in the high-school building. Consideration $1,995. T. J. Green has been awarded the contract for the installation of a ventilating system in the Madison school in this city. This contract amounts to $2,030.85.

Harrisburg, Pa.—Charles Shutter is doing a good business this year. He has secured the contract for 10 houses in Enola and other special residence work in the vicinity. Mr. Shutter's establishment is on South Front Street, Harrisburg, Pa.

THE ENTERPRISE OF JOHN E. WOOLLEY & SON, EVANSVILLE, IND.

Among the noteworthy plumbing and heating establishments of Evansville, is that of John E. Woolley & Son, whose office and salesroom are at the corner of Fourth and Locus Sts. The Woolleys claim that that they have some right of ancestry in the heating business, for they were active in the opening up of the coal-fields of Indiana. The president of the concern is John E. Woolley; the vice-president and manager is William J. Woolley.

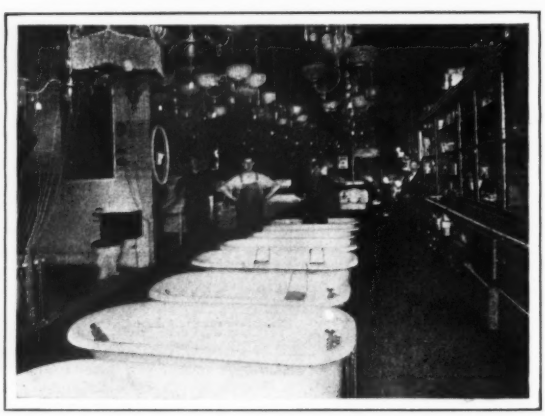
The business was commenced in Evansville in 1903.

William J. Woolley, Evansville, Ind.

Prior to that time the Woolleys were in Petersburg, controlling its gas and water departments, and had a plumbing and heating business. They have still considerable connection with coal interests.

At the present time they have a first-class plumbing and heating business and do gas-fitting. They also handle motor washing-machines, surburban water-supply systems, laundry-equipments, and general sanitary supplies.

The concern is advantageously located and considerable attention is paid to an effective display of the goods



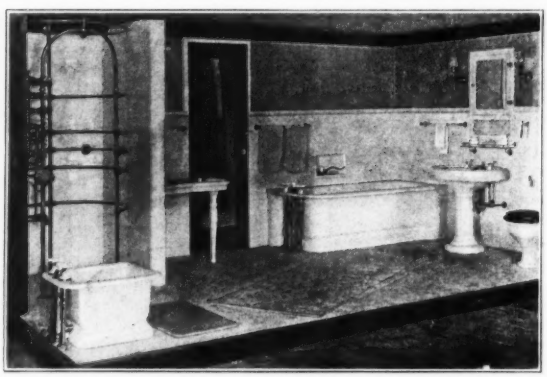
Up-to-date Showroom of John E. Woolley & Son, at Evansville, Ind.

they handle, as will be seen in the excellent illustration of the show-room. William J. Woolley is popular at state-conventions, a strong believer in the value of association, and proved to be an active member of the entertaining committee during the recent picnic of the Peerless Selling Co. Mr. Woolley ran for Councilman in Evansville, and got there. Friend Woolley's aggressiveness generally obtains for him what he goes after. He reports that so far the year's business has been exceptionally good, with every promise of a continuance of the favorable conditions to the end of 1911.

Mr. Woolley takes a keen interest in municipal affairs and his example could profitably be followed by plumbers throughout the country. It is poor policy to let all the other fellows run things. It is too hard work fighting back. As soon as plumbers realize the importance of their life-work in the national scheme and take an active interest in public affairs, the trade will forge ahead rapidly and there will be less complaint about the meager pickings in the business. Mr. Woolley says that the plumbers in Evansville are good fellows and that he hopes the Evansville association will become one of the strongest in the constantly growing list of master plumbers' associations.

A HANDSOME PLUMBING EXHIBIT AT THE IDEAL HOME SHOW.

At the Ideal Home Show recently held in Cleveland, O., one of the most interesting exhibits was that maintained by the Schneider Plumbing Co., of 2024 Euclid Ave., in that city. A picture of the exhibit is herewith shown. The convenient arrangement of the "room" was a matter of very favorable comment. According to President Gustav Schneider, the cost of installing a similar



The Handsome Exhibit of the Schneider Plumbing Co., of Cleveland, O., at the Ideal Home Show in that City.

room in a private dwelling would amount to $635.30, which includes everything from the shower to the toilet-paper holder, towel-bars, etc., such as are shown in the picture. The tile work of the walls, floor and wing for the shower is an item of $275. The installation, however, varies to such an extent that a price would be largely guess work, this being regulated by the source of water supply, sewerage, etc. The arrangement of a bath-room like this is such that it is absolutely sanitary.

SOUTHERN NOTES.

Nashville, Tenn.—State Superintendent J. W. Brister has awarded the contract for plumbing on the State Colored Agricultural and Industrial Normal School, on Centennial boulevard, to D. Grewar Co., at $2,400, and the heating contract to the same firm at $10,000.

Martin, Tenn.—Abe Burchard is doing the steam-heating work on the Martin high school building, and considerable plumbing work in the court-house at Dresden, Tenn.

Chattanooga, Tenn.—T. S. Wilcox, one of the leading plumbers, announces that he will not resign his position as State Prison Commissioner, but will continue as the Democratic representative on the board.

OSWEGO, N. Y., HAS NEW PLUMBING INSPECTOR.

Charles Malone has been appointed plumbing inspector at Oswego, N. Y., to succeed the late Frank J. Cusick. A salary of $920 a year is attached to the position.

The Rock Island Register Co., Rock Island, Ill., has been capitalized at $30,000. It will manufacture and deal in general heating and ventilating supplies. Incorporators: J. J. Burgess, S. P. Burgess, and Jens Nielson.

PACIFIC COAST LETTER

San Francisco.

The rebuilding of San Francisco has progressed to the extent that many of the shop buildings that have been occupied by plumbers since the fire of 1906 are being removed to make way for structures of a permanent character. Plumbers who have been forced out of their old quarters are no longer seeking temporary buildings to house their shops but are moving into neat brick and concrete structures and are settling into what are intended to be permanent homes. The general building outlook is now such that the members of the trade are encouraged to make additions to their facilities and, in spite of the fact that San Francisco is now credited with having the largest plumbing shops of any city of its size, some substantial additions are being made by several contractors to their former shop equipment. A surprisingly large amount of building work is now going on here and this will show great increase in the near future Much work of this character will be done in connection with the Panama-Pacific International Exposition and from the plans now being made some of this work will be commenced at a not distant date. Architects are now busier on private work than has been the case in several years and the fall building season is expected to be very active.

In connection with the mention of new shops in this city it would be unfair to mention the subject without calling attention to the fine new establishment of John G. Sutton & Co., at 243 Minna St. This shop is housed in a fine brick building of heavy construction designed especially for the purpose. The building covers a large ground space, extending from Minna street to a rear street, and has the added advantage of being located in a central part of the city. Special attention has been paid to the shop arrangement with an idea of securing the greatest efficiency and the result is that the shop is probably the best arranged and equipped of any establishment of the kind on the coast. This firm does a large plumbing, heating and ventilating business and has been successful of late in landing some of the largest contracts let in this section. In fitting up the new shop much new machinery was purchased and some of the machines now in operation are models never before seen here.

An event of considerable importance locally is the incorporation this week of the J. Looney Co., of this city, with a capital stock of $50,000. The incorporators are J. Looney, R. H. Griffith, W. T. Elliott, James Mearns, and James Reilly. Mr. Looney has been in the plumbing business in this city for many years and most of this time has been located on City Hall Avenue, where the shop is at present. Some very large contracts have been handled since the fire and the shop equipment has gradually been enlarged until the volume of business done has marked this plumber as being one of the leading contractors in this line in the city. One of the most important contracts let in this locality in a long time, the plumbing work in the new City Hall building at Oakland, Cal., was secured by Mr. Looney, and work on this will soon be under way. This job alone is valued at about $35,000. It is the intention of the firm to pay an increased amount of attention to outside contracts and to make a bid for some of the very large jobs that will be ready here within a short time. R. H. Griffith, who is now with this firm, was formerly with one of the large supply-houses of San Francisco and is an expert in matters pertaining to sanitation.

Mangrum & Otter have been awarded the contract for the installation of a steam-heating system in the five-story building being erected by G. P. Allen on Sutter street, near Polk, the contract being valued at $2 200.

H. H. Larsen & Bros. have contracted to do work including plumbing in a two-story building being erected by Theo. Dierks on Golden Gate avenue, near Larkin street.

State Engineer Ellery has issued a statement to the effect that the state is paying about 10 per cent more for pipe than the United States Government pays the same manufacturing firm for similar material. He states that about $100,000 worth of pipe is used a year.

Elsewhere in California.

Oakland, Cal.—Plumbers who expected that a large amount of work would be available in the annexed districts have been disappointed so far and from the present outlook it will be a long time before there is much doing in the outlying territory that forms such a large part of the city. Previous to being persuaded to join the larger city, many of the smaller places had made arrangements for the installation of sewer systems and were assured that these plans would be carried out at once. The courts have now declared that their bond issues are worthless and there seems to be no haste on the part of the officials of Oakland to see that sanitary improvements are made. As a result two years have passed since the annexation and there are still no sewers in these districts. In some of the school-buildings deplorable conditions are prevailing, especially at Elmhurst, and parents are refusing to send their children to school. Last spring arrangements were made to put in a new heating system at the Elmhurst school and holes and vents were made for the reception of pipes and apparatus. One contract for the work was awarded but this was cancelled later when a mistake was discovered and the board of education has not yet awarded another contract owing to the fact that the members cannot agree upon just who has submitted the lowest and best bid. The city officials are being severely criticized by the residents in the annexed district, who claim that too much attention is being devoted to water-front improvement schemes and not sufficient to public comfort and health.

Modesto, Cal.—Hoyt Bros. have been awarded the contract for the installation of the heating plant to be installed in the McHenry Free Library building.

NEWS FROM WISCONSIN.

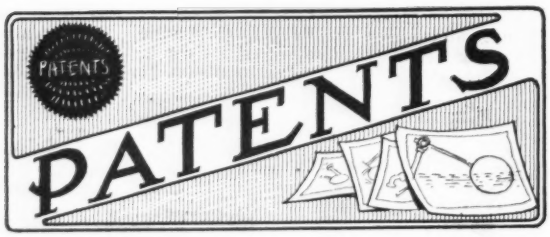
Kenosha.—The local union of plumbers has joined the building trades section of the Trades and Labor Council and adopted a card system, to take effect Aug. 21, 1911. Every person engaged in any manner in the erection of any building in this city will be required to carry this card on and after the above date. J. G. Hertzberger is president.

Fond du Lac.—A new hot-water heating plant will be installed in the parsonage of the St. Louis church here. The Ahern & McCoy Co. has secured the contract for the job. A new similar plant may be installed in the church in the near future.

Marinette.—The new plumbing ordinance which makes it necessary for master plumbers to obtain licenses from the city has not been complied with and the firms have been notified that the permits for tapping sewers will be refused until the ordinance is complied with. George Rathbun, the sanitary inspector, has been appointed plumbing inspector by the city. The new ordinance does not provide for a board of examiners but a petition has been sent to the council asking for such a board.

Antigo.—The Pioneer Iron Works of this city is constructing a screening plant with a capacity of 300 cubic yards a day. It will be used to sift the gravel and sand which will cover the bottom of the filter bed at the sewage disposal plant, which is being erected by the city.

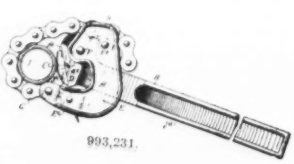
Milwaukee.—Schuman & Luebke have been awarded the contract for plumbing in John Wolff's new residence. Architects Leiser & Holst prepared the plans. The plumbing for the church at 32nd St. and Hilda Pl. has been awarded to Wenzel & Henoch.—Ax Westphal will do the plumbing work for remodeling the cottage of Otto Schuerman.—Architect Wiskocil has let the plumbing contract for Anton Spiel's residence to O. H. Dittmer.

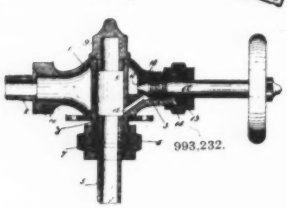


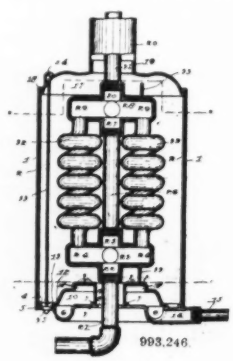
Heating Department.

993,231. Pipe-Wrench. Peter E. Erickson, Port Chester, N. Y. A pipe-wrench, comprising a serrated convex head forming one end of a handle and provided with segmental shoulders, a bifurcated lever loosely pivoted on the said head and adapted to abut with its fulcrum portion against the said shoulders to relieve the pivot of strain, one end of the lever having a plurality of teeth, and a chain connected with the other end of the lever and adapted to pass around the pipe and removably engage the said teeth, the said head having a release projection adapted to engage the inner edge of the chain, to release the chain relative to the teeth when releasing the grip on the pipe.

993,232. Gage-Glass Cock. Charles F. Fernald, Boston, Mass., assignor to Star Brass Mfg. Co., Boston, Mass., a corporation of Massachusetts. A gage cock having a chambered body provided with a glass receiving stem, said body being provided with openings through the opposite walls thereof in alinement with said stem, an inside connection passing through said body in the line of said openings and closing the same from the


993,231.


993,232.


993,246.

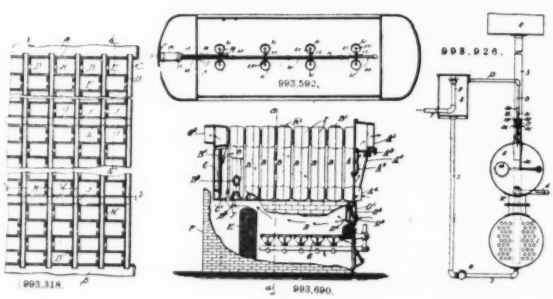
chamber of said body, means for closing the outer end of said passage, a valve casing extending from said body and forming a valve chamber, a partition separating the chamber of said valve casing from the chamber of said body, said partition having a port therein providing communication between said chambers, said body of the cock being provided also with a bypass leading from the chamber of said valve casing to the cavity of said glass receiving stem or passage connecting therewith, a valve located within said valve casing for controlling the port in said partition, and means for packing said valve.

993,246. Water-Heater. Charles Hart, Oakland, Cal., assignor to The Hart Heater Co., a corporation of California. A heater comprising a bottom plate provided with an annular depression and a central opening, a fuel inlet-pipe communicating with said depression, a flange surrounding said central opening, a flange surrounding said depression, a flange adjacent to the outer edge of said plate, a burner cap for said plate, said cap provided with side walls resting within the flange surrounding said depression, a central collar for said cap resting within the flange surrounding said central opening, the top of said cap provided with outlet openings, a casing resting upon said plate and surrounding said flange adjacent the outer edge of said plate, a water inlet pipe passing through said central opening, heating coils communicating with said water-pipe, and an outlet-pipe communicating with the upper ends of said coils.

993,318. Radiator. Frank Todd, Chicago, Ill., assignor to Joseph B. Long, Chicago, Ill. A radiator having, in combination, two headers, a series of flat, parallel, continuous tubes extending uninterruptedly from one header to the other, said tubes being spaced apart leaving air passages between them, spacing, bracing and radiating strips, bent so as to form a continuous series of rectangular channels opening alternately in opposition directions, arranged in said passages with their channels in horizontal alinement, the bottoms of the channels of each strip being in contact with the sides of adjacent tubes and being cut away at their forward ends, while their sides terminate at their forward ends flush with the front sides of the tubes, the front sides of the tubes being provided at infrequent intervals with alined notches and continuous hard metal bracing strips arranged in said notches and engaging the channel strips, the front surfaces of the tubes and spacing strips being flush.

993,592. Ventilating System. Moses Gans, Cincinnati, O. In a ventilating system, a chamber, a series of ventilators disposed in the interior of the chamber, each ventilator including a hollow stem opening out of the chamber; a casing; a series of flues each connected at one end with said casing and having its opposite end extending within one of said ventilator stems; an inlet pipe connected at one end with said casing; and a fan rotatably mounted in said casing in position to discharge a current of air through said flues, to create a forced draft in said ventilators, and to discharge a current of air through said inlet pipe into the interior of the chamber.

993,690. Heating Apparatus. Joseph Moses Ward Kitchen, East Orange, N. J. In a heating apparatus, the combination of (1) connected vertical chambered sections, (2) a base for said sections, said base comprising non-conducting side walls preventing lateral transmission of heat from the fire mass in said apparatus, a shaking grate, provision for under grate and over fire mass air introduction, a non-conducting bridge wall and a cavity back of said bridge wall, said cavity containing a gas outlet at a high level, said ash pit and said cavity being divided from each other at a low level, (3) a combustion chamber in said apparatus having means for the elongated horizontal travel of the gases evolved from the fuel in said apparatus, (4) means for a controlled equably diffused introduction of air for combustion above the fire mass of said apparatus, (5) a part of said apparatus separate from and divided from said combustion chamber by chambered strata of water and heat non-conducting means except as for a transversely extended horizontally disposed exit for heating gases at a high level at the rear of said combustion chamber through which exit passes gases from said combustion chamber to said part, said part comprising means for the counter-current travel of the heating gases and the water to be heated passing through said part, said part comprising chambered sections, said water passing through the



chambered sections from a low level of said part to a high level and from one end of said part to the other end in counter-current with the travel of said gases with a final exit of the gases from the heating surfaces of said sections at or near a point where cool feed water enters said apparatus, and (6) an outlet for water or steam at a high level of said sections.

993,926. Hot-Water Heating Installation. Iwan Wassiliew, Wiatka, Russia. In a hot water-heating system, the combination, with a boiler provided with a dome for steam and water which is constantly in free communication with its main porton, and a circuit of pipes for hot water provided with a circuit-supply pipe which is con-

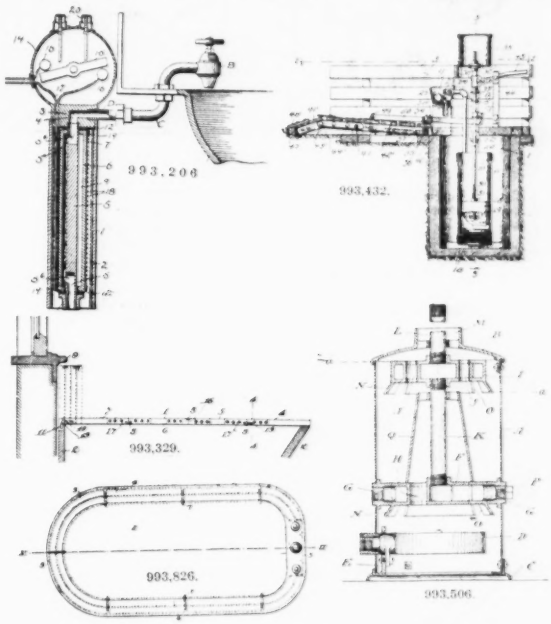
nected to the boiler and having also a return pipe; of an expansion vessel connected with the main portion of the boiler and operating to determine its working pressure, a collector vessel having a single chamber arranged above the level of the boiler dome and having the said return pipe connected to it, a pipe coupling the said collector vessel direct to the main portion of the boiler, check valves inserted in the said circuit-supply pipe and in the return coupling pipe adjacent to the boiler, a steam-pipe arranged between the said dome and collector vessel and constituting the only direct communication between them, a steam supply valve arranged in the said steam-pipe, a float arranged in the said dome and operated by the water in the dome, and trip mechanism arranged between the said float and steam-valve and operating to admit steam to the collector vessel when the water level in the dome is reduced by the pressure of the steam in said dome which forces the water from the main portion of the boiler into the said expansion vessel and circuit-supply pipe.

Plumbing Department.

993,206. Electric Water-Heater. Milton H. Shoenberg, San Francisco, Cal., assignor to Presto Electrical Co., San Francisco, Cal., a corporation of California. An electric water-heater comprising a tubular casing, a tubular heater element within said casing having a resistance coil insulated therefrom and surrounding the exterior only of said heater element, a solid core extending through said heater whereby an annular channel is formed through which channel only the water passes, fluid inlet and outlet passages connected to the opposite sides of said channel, and means for removably supporting said heater element upon said core and forming a water-tight seal about the core for the ends of said heater.

993,329. Washtub-Cover. Frederick H. Trow, Leonia, N. J. A wash-tub cover formed of a plurality of connected sections supported on a ledge, one of said sections being anchored at the back of the tub; and means to cause all of the sections to fold and lie in folded conditions on the ledge at the back of the tub.

993,432. Water-Elevating Apparatus. Clifton F. Young and Lewis A. Berger, Circleville, O. A water-elevating apparatus comprising a cylinder having check-valved inlet and outlet ports, a piston comprising a hol-



low shell operation in said cylinder, a rod extending upwardly from the piston, a trough, a conductor leading from the outlet port to the trough, a tilting platform terminating at its inner end below and adjacent to the

CAPITOL FOOT REST

The Capitol Foot Rest

Just what the cut illustrates.

An attractive convenient rest for chilled or damp feet. Strong in construction, neat in design, can be fastened to any cast iron radiator. In addition to the position illustrated shelf may be raised to horizontal position and used as a plate warmer, or lowered flat against the radiator.

Every owner would like one or more of these foot rests for they add to the comfort and are inexpensive.

Lay in a small stock, put one in your window, show it to your customers, and see how quickly they sell.

Now is the time to start with this Sterling Specialty. Sell it to your old customers.

PRICES ON REQUEST

UNITED STATES RADIATOR CORPORATION

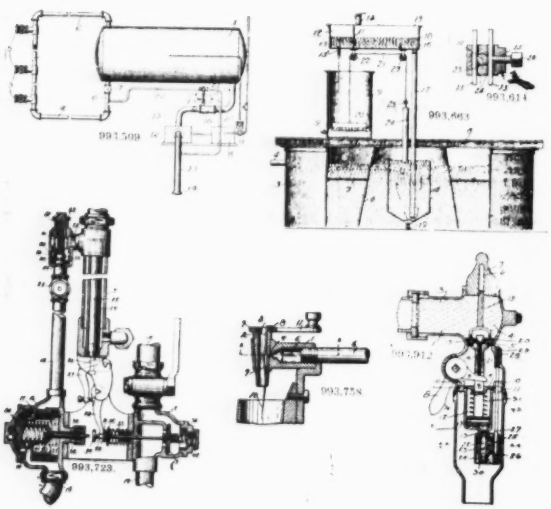
General Offices, Detroit, Michigan
Branches in Principal Cities

MAKERS OF UNITED STATES BOILERS, RADIATORS AND SUPPLIES

Kindly quote "Domestic Engineering" in writing advertisers.

front of the trough, said platform comprising an inner long section pivotally mounted between its center and outer end and an outer short section pivoted to the outer end of said inner section, a yoke lever pivotally connected with the rod and having its arms extending along and pivoted to the inner end of the long platform section, and cushioning connections intermediate said pivot points between said lever arms and said inner end of the long platform section.

993,506. Water-Heater. Alfred C. Clayton, Toronto, Ontario, Canada. In a water-heater the combination of a water section provided with a water inlet, a water outlet and a passage for the products of combustion; a second section above the first provided with a water



inlet and a water outlet; a pipe connecting the water outlet of the lower section with the inlet of the upper section; a funnel surrounding said pipe adapted to concentrate the products of combustion passing through the lower section against the said pipe and the central part of the underside of the upper section, openings being formed through said skirt to permit of air passing up outside the skirt mingling with products of combustion under the section.

993,509. Circulation-Maintaining Means for Water-Supply Systems. Irving Cowles, Chicago, Ill. The combination with a hot-water supply system including a source of supply, and a service pipe-line fed therefrom, a pump feeding the said system, and a fluid pressure actuated valve controlling said pump, of a pipe connecting the suction end of said pump with said service pipe line at a point in said service pipe farthest from the connection thereof with said source of supply, a valve in said pipe, means maintaining sad valve normally open, and means adapted to be actuated by the flow of water passing from said pump into said reservoir and operatively actuating said valve to close the same against the action of said means maintaining the same normally open.

993,614. Meter-Bracket. Philip Mueller and Anton C. Schuermann, Decatur, Ill., assignors to The H. Mueller Mfg. Co., Decatur, Ill., a corporation of Illinois. A supporting shelf or bracket comprising an attaching member, a one-piece seat member, and a connecting sleeve member for said attaching and seat members, said seat member having legs spaced apart and adapted to straddle and contact with opposite sides of the attaching member within the connecting member when the parts are assembled, and means carried by the connecting member for securing the parts in assembled condition.

993,663. Water-Softening Apparatus. Francis S. Dunham, Chicago, Ill., assignor to Kennicott Water-Softener Co., a corporation of Illinois. In a water-softening apparatus, means for supplying to the water to be treated therein the chemical treating-material in stick-form, comprising a tank, means for proportioning the supply to the tank of said water, a float in the tank and mechanism for engaging the stick, connected with the float to be actuated by its rise to advance said stick, for the purpose set forth.

993,723. Instantaneous Water-Heater. George A. Shook, Pittsburg, Pa., assignor, by mesne assignments, to Pittsburg Water Heater Co., Pittsburg, Pa., a corporation of New Jersey. The combination in an instantaneous water-heater having water valve and thermostatic-controlling means and a gas valve, of spring means between the operating member of the water valve and gas valve, and a connection between the gas valve and thermostatic-controlling means whereby the spring means may be compressed and the gas valve operated when the water valve is open in case the temperature of the water rises above a predetermined point, the connection between the gas valve and thermostatic-controlling means having sufficient lost motion to normally permit the water to operate the gas valve independent of the thermostatic-controlling means.

993,758. Faucet. George E. Clapp, Kalamazoo, Mich. A faucet comprising an exterior casing having a chamber with an outlet port; a tubular tapered spigot open at the top and bottom disposed in said casing, with a lateral port to register with the said outlet port of said chamber and control the flow therefrom; a lead wire having a tapered point extending beneath the spigot, disposed within said spigot and offset opposite the said port and contacting with the inside of said spigot beneath said port; and a suitable handle for adjusting the said spigot, coacting for the purpose specified.

993,826. Casing for Bath-Tubs. James H. Danver, Beaver, Pa., assignor to United States Sanitary Co., Pittsburg, Pa., a corporation of Pennsylvania. A metal casing for bath tubs adapted to surround the sides and ends of the tub and having a supporting lower edge adapted to rest upon the surface which supports the tub, and the upper edge of the casing being adapted to extend upwardly underneath the outwardly turned edge of the tub, the casing having an offset at one end to receive the fittings of the tub; substantially as described.

993,912. Flushometer. John F. Thorsk, Tacoma, Wash. In a flushometer, the combination of a body formed of two separable sections, the upper of said sections being adapted to be attached to a pressure water-supply pipe and having a downward extension, and the lower section attached to the end of said downward extension and adapted to deliver the water; an upward-facing valve seat formed in the downward extension of said upper section; a main valve adapted to open upwardly against the water pressure and to engage said valve seat and having an upwardly extending stem; a guide cavity in said upper section adapted to receive and guide said stem; a relief valve within said main valve and adapted when opened to reduce the pressure thereon; a downwardly extending valve stem for said main valve having a longitudinal passage therein extending through the valve downward to a transverse slot through the stem; a valve-stem secured to said relief valve and extending downward through said passage and into said slot; a hand operated lever mounted below said main valve and extending into said slot to engage said relief valve-stem to press it upward and to engage said main valve-stem to raise said valve; a cylinder secured to said downward extension of the upper section and extending downward into said lower section and open at the top; a piston secured to said downwardly extending main valve-stem and fitting said cylinder; an extension piece secured to the lower end of said cylinder and having a passage therethrough; a check-valve-controlled inlet to said passage in the extension piece; a needle-valve-controlled outlet from said passage in the extension piece; and an open removable cup surrounding said extension piece and adapted to hold water and to seal the cylinder against the entrance of air thereto.

OBITUARY.

Francis A. Rourke.

Francis A. Rourke, formerly a member of the plumbing firm of Hayes & Rourke, of New Haven, Conn., died at his home on East street in that city on August 5th of pneumonia. Mr. Rourke is survived by his wife and two children. Two brothers, Edward A. and Thomas P. Rourke, now conduct a plumbing establishment on Grand avenue, New Haven.